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THE UNCONSCIOUS

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THE UNCONSCIOUS

THE FUNDAMENTALS OF HUMAN PERSONALITY NORMAL AND ABNORMAL

BY

MORTON PRINCE, M.D., LL.D.

PROFESSOR (EMERITUS) OF DISEASES OF THE NERVOUS SYSTEM, TUFTS COLLEGE MEDICAL SCHOOL; CONSULTING PHYSICIAN TO THE BOSTON CITY HOSPITAL

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PREFACE

This work is designed to be an introduction to abnormal psychology. The problems considered, however, belong equally to normal psychology in that they are problems of psycho-physiological functions and mechanisms. I have made no attempt to develop any particular school of psychological theory but rather, so far as may be, to gather together the knowledge already gained and lay a foundation which can be built upon by any school for the solution of particular problems, especially those of special pathology. I have therefore endeavored to avoid controversial questions although this, of course, has not been wholly possible, and indeed so far as special pathological conditions (the psychoses) have been considered, it has been for the purpose of providing data and testing the principles adduced. The inductive method, alone, I believe, as in the physical sciences, can enable us to arrive at sound conclusions—justify the formulation of theories to explain psychological phenomena. Because of the very difficulties of this field of research—one of which is that of submitting to experimental conditions complex psychological phenomena having so many factors—it is all the more incumbent that the inductive method should be employed. To my way

of thinking we should begin at the bottom and build up bit by bit, drawing, as we go, no wider conclusions than the facts developed warrant; or if we do, these should be recognized clearly as working hypotheses or speculative theories. Skyscrapers should not be erected until the foundations have been examined to see if they will bear the superstructure. That I have wholly succeeded in so rigorously restricting my own endeavors I can scarcely hope. I trust, however, that I have succeeded in consistently maintaining the distinction between facts and their interpretations.

The present volume consists of selected lectures (with the exception of four) from courses on abnormal psychology delivered at the Tufts College Medical School (1908-10) and later at the University of California (1910).* These again were based on a

* In this connection it is a satisfaction to the author to note that more recently a committee was appointed by the American Psychological Association (December, 1911) to investigate the relation of psychology to medical education. This committee, after an extensive inquiry by correspondence with all the medical schools of the country, has made a report (Science, Oct. 17, 1913) based upon the preponderating opinion of the best medical schools and of the schools as a whole. The second (in substance) and third conclusions reached in the report were as follows:

2nd: For entrance in certain schools requiring a preliminary college training of greater or less length an introductory or premedical course in psychology should be required in the same way as they now require chemistry, biology, physics, etc., or, in lieu thereof, a course in the medical schools.

3rd: "It is the belief of most of the best schools that a second course in psychology should precede the course in clinical psychiatry and neurology. This course should have more of a practical nature,

series of papers on the Unconscious published in the Journal of Abnormal Psychology (1908-9) of which they are elaborations. Since the lectures were delivered a large amount of new material has been incorporated and the subject matter considered in more detail and more exhaustively than was practical before student bodies. The four additional lectures (X, XI, XII and XIII) appeared in abbreviated form in the same Journal (Oct., Nov., 1912) under the title "The Meaning of Ideas as Determined by Unconscious Settings." The lecture form has been retained, offering as it does many advantages where, in the exposition of a difficult subject, much that is elemental needs to be stated.

As the subconscious and its processes are fundamentals both in the structure of personality and in

and should deal especially with abnormal mental processes and with the application of psychological principles and facts to medical topics. Although this course should deal chiefly with psychopathology, it should not be permitted to develop, or degenerate, into a course in psychiatry, neurology or psychotherapeutics. This course should be clinical in the sense that, as far as possible, clinical material should be the basis of the course, but it should not be clinical in the sense that the students are given particular cases for the purpose of diagnosis or of treatment. The functions of the courses in psychiatry and neurology should not be assumed by this course."

The courses, from which I have selected twelve lectures for my present purpose, were designed for just such instruction as is recommended in this report. They were, I believe, the first to be given on these subjects in any medical school or college in this country. Necessarily they covered a wider range of topics than the lectures now published which more properly serve as an introduction to the general subject.

the many mechanisms through which personality, normal and abnormal, finds expression, the first eight lectures are devoted to its exposition. Indeed, as has been said, the subconscious is not only the most important problem of psychology, it is *the* problem. The study of its phenomena must be preliminary to that of the functioning mechanisms of both the normal mind and of those special pathological conditions—the psycho-neuroses—which modern investigators are tracing to its perversions.

In a recently published article M. Bergson concludes with the following prophesy: "To explore the most sacred depths of the unconscious, to labor in what I have just called the subsoil of consciousness, that will be the principal task of psychology in the century which is opening. I do not doubt that wonderful discoveries await it there, as important perhaps as have been in the preceding centuries the discoveries of the physical and natural sciences. That at least is the promise which I make for it, that is the wish that in closing I have for it." *

And yet one reads and hears all sorts of contradictory statements, made by those who it is presumed should know, regarding the actuality of the subconscious. Thus one or another writer, assuming to know, states most positively that there is no such thing as the subconscious. Others, equally emphatic, postulate it as an established fact rather than a theory, or assume it as a philosophical concept or hypothesis to explain particular phenomena.

* "The Birth of the Dream," *The Independent*, Oct. 30, 1913.

One difficulty is that the term, as commonly used, has many meanings, and it has followed that different writers have assumed it with respectively different meanings. Consequently the subconscious as an actuality has been unwittingly denied when the intent has been really to deny some particular meaning or interpretation, and particular meanings have been subsumed which are only philosophical concepts.

There should be no difficulty in deciding what the facts permit us to postulate. The subconscious is a theory based upon observed facts and formulated to explain those facts. There are many precise phenomena of different kinds which can only be explained as due to explicitly subconscious processes, that is, processes which do not appear in the content of consciousness; just as the phenomena manifested by radium can only be explained by emanations (or rays) which themselves are not visible and cannot be made the object of conscious experience. In each case it is the manifestations of such processes of which we become aware. Subconscious processes and radio-activity stand on precisely the same basis so far as the determination of their actuality is concerned. (The latter have the advantage, of course, in that being physical they are subject to quantitative measurement.) Such being the case it ought to be possible to construct the theory of the subconscious by inductive methods on the basis of facts of observation just as any theory of the physical sciences is constructed.

This task I have set before myself as well as that of giving precision to our conception of the theory and taking it out of the domain of philosophical concepts. With this purpose in view I have endeavored to apply the method of science and construct the theory by induction from the data of observation and experiment. I dare say this has been a somewhat ambitious and some will say, perhaps, overbold undertaking. Undoubtedly, too, this attitude toward this and other individual problems has not been always consistently maintained, nor perhaps is it completely possible in the present state of the science.

Our formulations should be as precise as possible and facts and concepts of a different order should not be included in one and the same formula. I have, accordingly, divided the subconscious into two classes, namely (1) the *unconscious,* or neural dispositions and processes, and (2) the *coconscious,* or actual subconscious ideas which do not enter the content of conscious awareness. An unconscious process and a coconscious process are both therefore *subconscious* processes but particular types thereof —the one being purely neural or physical and the other psychological or ideational.

The soundness of the conclusions reached in this work I leave to the judgment of my critics, of whom I doubt not I shall have many. I do not hesitate to say, however, that it is only by practical familiarity with the phenomena of mental pathology and artificially induced phenomena (such as those of hyp-

nosis, suggestion, etc.), requiring a long training in this field of research (as in other scientific fields), that we can correctly estimate the value of data and the conclusions drawn therefrom; and even then many of our conclusions can be regarded as only provisional.

In these lectures I have also endeavored (Lectures XIV-XVI) to develop the phenomena of the emotional innate dispositions which I conceive play one of the most fundamental parts in human personality and in determining mental and physiological behavior.

Experimental methods and the well-known clinical methods of investigation have been employed by me as far as possible. The data made use of have been derived for the most part from my own observations, though confirmatory observations of others have not been neglected. Although a large number and variety of subjects or cases have been studied, as they have presented themselves in private and hospital practice, the data have been to a large extent sought in intensive studies, on particular subjects, carried on in some cases over a period of many years. These subjects, because of the ease with which subconscious and emotional phenomena were either spontaneously manifested or could be experimentally evoked, were particularly suitable for such studies and fruitful in results. It is by such intensive studies on special subjects, rather than by casual observation of many cases, that I believe the

deepest insight into mental processes and mechanisms can be obtained.

In conclusion I wish to express my great obligation to Mrs. William G. Bean for the great assistance she has rendered in many ways in the preparation of this volume. Not the least has been the transcription and typing of my manuscript, for the most part written in a quasi shorthand, reading the printer's proofs, and much other assistance in the preparation of the text for the press. For this her practical and unusually extensive acquaintance with the phenomena has been of great value.

I am also indebted to Mr. Lydiard Horton for kindly reading the proofs and for many helpful suggestions in clarifying the arrangement of the text—a most difficult task considering the colloquial form of the original lectures.

Boston.
458 Beacon Street.

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THE UNCONSCIOUS

THE UNCONSCIOUS:

THE FUNDAMENTALS OF HUMAN PERSONALITY, NORMAL AND ABNORMAL

LECTURE I

THEORY OF MEMORY AS A PROCESS

Gentlemen:

The subject which I have chosen for our first lecture is the theory of the mechanism of memory. I begin with the study of this problem because a knowledge of the facts which underlie the theory of memory is a necessary introduction to an understanding of the Unconscious, and of the part which subconscious processes play in normal and abnormal mental life.* Speaking more specifically, without such a preliminary study I do not believe we can interpret correctly a very large number of the disturbances of mind and body which are traceable to the activity of subconscious processes and with which we shall later have to do.

If we consider memory as a *process,* and not as specific phases of consciousness, we shall find that it is an essential factor in the mechanisms underlying a large variety of phenomena of normal and abnormal life. These phenomena include those of both

* I divide the Subconscious into two parts, namely the Unconscious and the Coconscious. See preface and Lecture VIII.

mind and body of a kind not ordinarily conceived of as manifestations of memory. I would have you dwell in your minds for a moment on the fact that I make this distinction between memory as a process and memory as a phase of consciousness or specific mental experience. What we ordinarily and conventionally have in mind when we speak of memory is the conscious thought of some past mental experience. But when we conceive of memory as a process we have in mind the whole mechanism through the working of which this past experience is *registered, conserved,* and *reproduced,* whether such reproduction be in consciousness or below the surface of consciousness.

Memory is usually looked upon as something that pertains solely to consciousness. Such a conception is defensible if the meaning of the term is restricted to those facts alone which come within our conscious experience. But when we consider the mechanism by which a particular empirical fact of this kind is introduced into consciousness we find that this conception is inadequate. We find then that we are obliged to regard conscious memory as only the end result of a process and, in order to account for this end result, to assume other stages in the process which are not phases of consciousness. Though the end result is a reproduction of the ideas which constituted the previous conscious experience, this reproduction is not the whole process.

More than this, the conscious experience is not the only experience that may be reproduced by the

process, nor is the end result always and necessarily a state of consciousness. *Conscious memory is only a particular type of memory.* The same process may terminate in purely unconscious or physiological effects, or what may be called physiological memory to distinguish it from conscious memory. Along with the revived ideas and their feeling tones there may be a revival of the physiological experiences, or processes, which originally accompanied them; such as secretion of sweat, saliva and gastric juice, the contraction and dilatation of the blood vessels, the inhibition or excitation of the heart, lungs and other viscera, the contraction of muscles, etc. These visceral mechanisms, being originally elements in a complex process and accompaniments of the idea, may be reproduced along with the conscious memory, and even without conscious memory. As this physiological complex is an acquired experience it is entitled to be regarded as memory so far as its reproduction is the end result of the same kind of process or mechanism as that which reproduces ideas.

Then, again, investigations into the subconscious have shown that the original experience may be reproduced subconsciously without rising into awareness.

The more comprehensive way, then, of looking at memory is to regard it as a process and not simply as an end result. The process, as we shall see, is made up of three factors—Registration, Conservation, and Reproduction. Of these the end result is

reproduction; conservation being the preservation of that which was registered.

This view is far more fruitful, as you will presently see, for memory acquires a deeper significance and will be found to play a fundamental and unsuspected part in the mechanism of many obscure mental processes.

From this point of view, upon memory, considered *as a process,* depend the acquired conscious and subconscious habits of mind and body.

The process involves unconscious as well as conscious factors and may be wholly unconscious (subconscious).

Two of its factors—registration and conservation —are responsible for the building up of the unconscious as the storehouse of the mind and, therefore, primarily for all subconscious processes, other than those which are innate.

To it may be referred the direct excitation of many subconscious manifestations of various kinds.

Consciously or subconsciously it largely determines our prejudices, our superstitions, our beliefs, our points of view, our attitudes of mind.

Upon it to a large degree depend what we call personality and character.

It often is the unsuspected and subconscious secret of our judgments, our sentiments, and impulses.

It is the process which most commonly induces dreams and furnishes the material out of which they are constructed.

It is the basis of many hypnotic phenomena.

In the field of pathology, memory, through its perversions, takes part in and helps to determine the form of a variety of disturbances such as obsessions, impulsions, tics, habit psychoses and neuroses, many of the manifestations of that great protean psychosis, hysteria, and other common ailments which it is the fashion of the day to term neurasthenia and psychasthenia. It is largely responsible for the conscious and subconscious conflicts which disrupt the human mind and result in various pathological states.

Finally, upon the utilization of the processes of memory modern psychotherapeutics, or the educational treatment of disease, is largely based. For many of these reasons an understanding of the mechanism of memory is essential for an understanding of the subconscious. In short, memory furnishes a standpoint from which we can productively study the normal and abnormal processes of the mind—conscious and subconscious.

These somewhat dogmatic general statements—which I have put before you much after the fashion of the lawyer who presents a general statement of his case in anticipation of the evidence—I hope will become clear and their truth evident as we proceed; likewise, their bearing upon the facts of abnormal psychology. To make them clear it will be necessary to explain in some detail the generally accepted theory of memory as a process and to cite the numerous data upon which it rests.

There may be, as, indeed, you will find there are, wide differences of opinion as to the exact psychological mechanism by which a memory-process plays its part in the larger processes of mental life, normal and abnormal, such as I have just mentioned, but that the memory-process is a fundamental factor is revealed by whatever method the problems are attacked. A study, therefore, of this fundamental factor and a determination of its mechanism are a prerequisite for a study of the more complex processes in which it takes part. For this reason I shall begin the study of the Unconscious (subconscious), to which I shall ask your attention in these lectures, with a consideration of the processes of memory.

If you ask the average person, as I have often done, how or why he remembers he will be puzzled and he is apt to reply, "Why, I just remember," or, "I never thought of that before." If you push him a bit and ask what becomes of ideas after they have passed out of mind and have given place to other ideas, and how an idea that has passed out of mind, that has gone, disappeared, can be brought back again as memory, he becomes further puzzled. We know that ideas that have passed out of mind may be voluntarily recalled, or reproduced, as memory; we may say that meantime they have become what may be called dormant. But surely something must have happened to enable these conscious experiences to be conserved in some way and recalled. Ideas are not material things which, like books, can

be laid away on a shelf to be taken up again when wanted, and yet we can recall, or reproduce, many ideas when we want them just as we can go to a shelf and take down any book we want.

We learn the alphabet and the multiplication table in childhood. During the greater part of our lives the sensory images, auditory language symbols, etc., which may be summarized as ideas representing these educational experiences, are out of our minds and do not form a continuous part of our conscious experiences, but they may be recalled at any moment as memory. In fact, try as hard as we may, we cannot forget our alphabet or multiplication table. Why is this?

The older psychology did not bother itself much with these questions which puzzle the average man. It was content for the most part with a descriptive statement of the facts of conscious memory. It did not concern itself with the process by which memory is effected; nor, so long as psychology dealt only with phases of consciousness, was it of much consequence. It has been only since subconscious processes have loomed large in psychology and have been seen to take part on the one hand in the mechanism of conscious thought and on the other to produce various bodily phenomena, that the process of memory has acquired great practical importance. For it has been seen that in these subconscious processes previous conscious experiences are resurrected to take part as subconscious memory, conse-

quently a conscious experience that has passed out of mind may not only recur again as conscious memory, but may recur subconsciously below the threshold of awareness. The study of subconscious processes therefore necessarily includes the processes of memory. And so it has become a matter of considerable moment to follow the fate of experiences after they have passed out of mind with a view to determining the mechanism by which they can be reproduced consciously and subconsciously. More than this it is important that the theory of memory should be removed if possible from the domain of purely speculative psychological concepts and placed on a sound basis of observation and experiment like other accepted theories of science.

From the point of view of animism, and indeed of dualism, nothing becomes of the ideas that have passed out of mind; they simply, for the time being, cease to exist. Consciousness changes its form. Nothing is preserved, nothing is stored up. This is still the popular notion according to which a mental experience at any given moment—the content of my consciousness, for instance, at this moment as I speak to you—is only one of a series of kaleidoscopic changes or phases of my self-consciousness. In saying this what is meant plainly must be that the content of consciousness at any given moment is a phase of a continuing psychical something. We may, perhaps, call this my self-consciousness, and say that when I reproduce an

experience as memory I simply bring back (by the power of self-determination) that same previous phase of the psychical something. If I cannot bring it back my failure may be due to a failure of the power of self-determination or—and here is a weak point—to a failure in the formative cohesion of the elementary ideas of that experience. In this latter alternative no note is taken of a seeming contradiction or paradox. If nothing is preserved, if nothing continues to exist, if memory is only one of a series of kaleidoscopic phases of consciousness, how can there be any cohesion or organization within what does not exist? Consciousness according to this notion might be likened to the water of a lake in which vortices were constantly being formed, either by the current of inflowing springs from the bottom or the influences of external agencies. One vortex would give place to a succeeding vortex. Memory would be analogous to the reproduction of a previously occurring vortex.

When, however, such a notion of memory is examined in the light of all the facts which have to be explained it will be found to be descriptive only of our conscious experiences. It does not explain memory; it does not answer the question of the ordinary man, "How can ideas which have ceased to exist be reproduced again as memory?" For, putting aside various psychological difficulties such as, How can I determine the reproduction of a former phase of consciousness—that is, memory—without first *remembering* what I want to deter-

mine?, or, if this be answered, "By the association of phases (ideas)," how can there be any bond of association between an existing idea and one that does not exist?, and, therefore, how can association bring back that which has ceased to exist?—putting aside such questions, there are a number of psycho-physiological facts which this conception of memory will be found inadequate to meet. As a matter of fact, investigations into the behavior of mental processes, particularly under artificial and pathological conditions, have disclosed certain phenomena which can be adequately explained only on the supposition that ideas as they pass out of mind—the mental experiences of the moment—leave something behind, some residuum which is preserved, stored up as it were, and which plays a subsequent part in the process of memory. These phenomena seem to require what may be called a psycho-physiological theory of memory. Although the theory has long been one of the concepts of normal psychology it can be said to have been satisfactorily validated only by the investigations of recent years in abnormal psychology.

The full significance as well as the validity of this theory can be properly estimated only in the light of the facts which have been revealed by modern technical methods of investigation. After all, it is the consequences of a theory which count, and this will be seen to be true particularly as respects memory. The pragmatic point of view of counting the consequences, of determining the dif-

ference that the theory makes in the understanding of the mental processes of normal and abnormal life, reveals the importance to us of validating the theory. The consequences of the psycho-physiological theory are so far-reaching, in view of its bearing upon a large number of problems in normal and abnormal psychology, that it is worthy of sustained and exhaustive examination. I will, therefore, briefly résumé the various classes of facts which support the theory and which any adequate theory of memory must satisfactorily explain. For, as will appear, besides the common facts of memory pertaining to everyday life, there are a large number of other facts which can be observed only when the mind is dissected, so to speak, by pathological processes, and by the production of artificial conditions, and when investigations are carried out by special technic. Irrespective of any theory of explanation, a knowledge of these facts is extremely important for an understanding of many phenomena in the domain of both normal and abnormal psychology.

The meaning of conservation.—We all know, as an everyday experience of mankind, that at one time we can recall what happened to us at some particular moment in the past, and at another time we cannot. We know that when we have forgotten some experience if we stimulate or refresh our memory, as the lawyers say to us on the witness-stand, by reference to our notes, appropriately

called memoranda, the original experience may come back to mind. Often at one moment we cannot recall a verse, or a name, or a piece of acquired knowledge, while at another time, a little later, we can. We have a feeling, a perhaps justifiable belief, that a desired piece of knowledge is not lost, that it is back somewhere in our minds but we cannot get at it. If, sooner or later, under one circumstance or another, with or without the aid of some kind of stimulus, we can recall the desired knowledge we say it was preserved (or conserved). If we continue, under all circumstances and at all moments, to be unable to recall it we say it is lost, that our memory of it is not conserved. So the notion of conservation of knowledge being something apart from recollection enters even into popular language. What sort of thing conservation is, popular language does not attempt to define. It is clear, however, that we may with propriety speak of the conservation of experiences, using this term in a descriptive sense without forming any definite concept of the nature of conservation. Provisionally, then, I shall speak of conservation of a given experience in this sense only, meaning that the memory of it is not permanently lost but that under certain particular circumstances we can recall it.

Now a large mass of observations demonstrate that there are an enormous number of experiences, belonging to both normal and abnormal mental life, which we are unable to voluntarily recall during any period of our lives, no matter how hard we try, or

what aids to memory we employ. For these experiences there is life-long amnesia. Nevertheless, it is easy to demonstrate that, though the personal consciousness of everyday life cannot recall them, they are not lost, properly speaking, but conserved; for when the personal consciousness has undergone a peculiar change, at moments when certain special alterations have taken place in the conditions of the personal consciousness, at such moments you find that the subject under investigation recalls the apparently lost experiences. These moments are those of hypnosis, abstraction, dreams, and certain pathological states. Again, in certain individuals it is possible by technical devices to awaken secondary mental processes in the form of a subconsciousness which may manifest the memories of the forgotten experiences without awareness therefor on the part of the personal consciousness. These manifestations are known as automatic writing and speech. Then, again, by means of certain post-hypnotic phenomena, it is easy to study conservation experimentally. We can make, as you will later see, substantially everything that happened to the subject of the experiment in hypnosis—his thoughts, his speech, his actions, for all of which he has complete and irretrievable loss of memory in a waking state—we can make memory for all these lost experiences reappear when hypnosis is again induced. Thus we can prove conservation when voluntary memory for experiences is absolutely lost. These experiments, among others, as

we shall also see, also give an insight into the nature of conservation which is the real problem involved in an investigation into the process of memory.

Before undertaking to solve this problem—so far as may be done—it is well to obtain a full realization of the extent to which experiences which have been forgotten may be still conserved. I will therefore, as I promised you, résumé the experimental and other evidence supporting this principle, making use of both personal observations and those of others.

NOTE—In the following exposition of the evidence for the theory of memory it has been neccssary to make use of phenomena subsuming subconscious proccsses before the subconscious itself has been demonstrated. A few words in explanation of the terms used is therefore desirable to avoid confusing the reader.

Dividing as I do the subconscious into the unconscious and the coconscious, the former is either simply a neural disposition, or an active neural process without any quality of consciousness; the latter is an actual subconscious idea or a process of thought of which, nevertheless, we are not aware. An unconscious and a coconscious process are both, therefore, only particular types of a subconscious process. I might have used the single term subconscious throughout thc first seven lectures, but in that case, though temporarily less confusing, the data necessary for the appreciation of the division of the subconscious into two orders would not have been at hand. Typical phenomena having been described as unconscious or coconscious (instead of simply subconscious), the reader will have already become familiar with examples of each type and be thus prepared for the final discussion in Lecture VIII. PROVISIONALLY, these three terms may be regarded as synonyms. To indicate the synonym, the term "subconscious" has often been added in parenthesis in the text to one or other of the subdivisional terms, and vice versa.

LECTURE II

CONSERVATION OF FORGOTTEN EXPERIENCES OF NORMAL, ARTIFICIAL, AND PATHOLOGICAL LIFE

I. Normal Life

Evidence obtained by the method of automatic writing.— If we take a suitable subject, one in whom "*automatic writing*"* has been developed, and study the content of the script, we may find that to a large extent it contains references to, i. e., memories of, experiences which have long been forgotten by the subject and which cannot even by the stimulus of memoranda be voluntarily recalled.

* Automatic writing is script which has been produced unconsciously or involuntarily, although the writer is in an alert state, whether it be the normal waking state or hypnosis. The hand writes, though the subject does not consciously direct it. Ordinarily, though not always, the subject is entirely unaware of what the hand is writing, and often the writing is obtained better if the attention is diverted and directed toward other matters. The first knowledge then obtained by the subject of what has been written, or that the hand has written at all, is on reading the script. Some persons can cultivate the art of this kind of writing. Mrs. Verrall and Mrs. Holland, for example, deliberately educated themselves to write automatically, and each published a volume of her records. In other normal people automatic writing seems to develop accidentally or under special circumstances. In certain types of hysteria it is very easily obtained. "Planchette," which many years ago was in vogue as a parlor game, was only a particular device to effect automatic writing.

These experiences may be actions performed even as far back as *childhood, or* passages read in books, or fragments of conversation, etc. Thus B. C. A., who suffers from an intense fear or phobia of cats, particularly *white* cats, can recall no experience in her life which could have given rise to it. Yet when automatic writing is resorted to the hand writes a detailed account of a fright into which she was thrown, when she was only five or six years of age, by a white kitten which had a fit while she was playing with it. The writing also describes in minute detail the furnishings of the room where the episode occurred, the pattern of the carpet, the decorative designs of the window shades, the furniture, etc. As this observation is typical of many others, it may be well to dwell upon it long enough to describe it in some detail for the benefit of those who are not familiar with this class of phenomena.

After it had been determined, by a searching examination, that B. C. A. could not recall any experience that might throw light upon her phobia, an attempt was made to recover a possible memory in hypnosis. As is well known, the memory often broadens in hypnosis and events which are forgotten when "awake" may be recovered. In this instance the subject was put into two different hypnotic states, but without success. This, again, is a matter of some importance for the principle of conservation. Different hypnotic states in the same individual may be distinguished in that each, among other characteristics, may have different and inde-

pendent systems of memories, as we shall see later. The memories which belong to one state cannot be recalled in another. Hence the fact that a memory cannot be recovered in one state is not proof that it is not conserved, nor is a failure to recover the memory of an episode in all states of hypnosis evidence of failure of conservation, any more than is the failure to recover a memory in the waking state at any given moment.

In the experiment with B. C. A., after failing to awaken a possible memory in either state of hypnosis, a pencil was put in her hand while she was still hypnotized. The hand then wrote automatically, without the knowledge of the hypnotized subject, the following account of this childhood episode that I have just mentioned:*

"I think I know about the cats. I can remember myself, a little child, playing on the floor with a kitten, and it began to run about the room and had a fit, I think, and it jumped on me, and I was alone, and I screamed and cried and called my mother, but no one came, and I was very much frightened. I do not believe I ever told anyone. It was a white

* In this particular experiment, when the hand wrote "automatically," the second *hypnotic consciousness vanished* and the subject went into a *trance* state, or what is equivalent to a third hypnotic state. There was no consciousness present, excepting that which was associated with the writing hand. At other times, in experiments of this class with this same subject, the hypnotic or the waking consciousness, as the case might be, persisted *alert* while the hand wrote. For the purpose of the experiment in recovering memories this change in the psychological condition is not of importance, the principle remains the same.

kitten. It ran out of the room and after a bit I went on playing."

To test the extent of the conserved memories still further the hand was asked to describe the furnishings of the room and the plan of the house. It wrote:

"There were two windows on the side of the room. The shades were gray, I think, with a border of grapes, or something of that color. The carpet was green or gray with green figures. There was a large old-fashioned sofa between one window and the door which led into the dining-room. A bookcase and desk-combination, you know. There was a mantle, I think, between the windows. It was the ground floor."

This childhood episode and the furnishings of the room were completely forgotten by B. C. A. in the sense that they could not be voluntarily recalled. Even after reading the script she could not remember them. She had not seen the room since she was six years of age, the family having removed at that time from the town in which the incident took place. As to the accuracy of the "automatic" account and the possibility of fabrication, the description of the room has been corroborated by the independent and written testimony of an older member of the family. It was not possible to confirm the incident of the kitten as there were no witnesses. This portion of the account, therefore, cannot be proved not to be a fabrication, but I have never known a fabricated statement to be made in this subject's automatic

script, and I have obtained from her a large number of statements of different kinds in the course of several years' observation.

However that may be, the point is not essential, for the minute description, by a special technic, of the furnishings of a room which had not been seen since childhood, a matter of some thirty-five years, and which were totally forgotten, is a sufficient demonstration of the principle of conservation of conscious experiences that cannot be voluntarily recalled. The reproduction of the conscious experience by automatic writing was, of course, an act of memory effected by a special device, and this fact compels us to postulate the conservation of the experience during this long period of time, notwithstanding that the experience could not be recalled voluntarily. Although the conserved experience could not be awakened into memory by voluntary processes of the personal consciousness it could be so awakened by an artificial stimulus under artificial conditions.

An observation like this, dealing with the conservation of long forgotten childhood or other experiences, is not unique. Quite a collection of recorded cases might be cited. Mr. C. Lowe Dickinson has put on record * one of a young woman (Miss C.), who, in an hypnotic trance, narrated a dream-like fabrication of a highly imagina-

* *Journal of the S. P. R.*, July, 1906. A fuller account of this case was later published in the same journal, August, 1911.

tive character. On one occasion, through the imaginary intermediation of the spirit of a fictitious person, who was supposed to have lived in the time of Richard II, she gave a great many details about the Earl and Countess of Salisbury, "and other personages of the time, and about the manners and customs of that age. The personages referred to, the details given in connection with them, and especially the genealogical data, were found on examination to be correct, although many of them were such as apparently it would not have been easy to ascertain without considerable historical research." Miss C. after coming out of the hypnotic trance was in entire ignorance of how she could have obtained this knowledge and could not recall ever having read any book which contained the information she had given. Through automatic writing, however, it was discovered that it was to be found in a book called *The Countess Maud,* by E. Holt. It then appeared—and this is the point of interest bearing on the conservation of forgotten knowledge—that this book had been read to her by her aunt *fourteen years previously, when she was a child about eleven years old.* Both ladies had so completely forgotten its contents that they could not recall even the period with which it dealt. Here were conscious experiences of childhood which, if voluntary recollection were to be made use of as a test, would be rightly said to have been extinguished, but that they had only lain fallow, con-

served in some unconscious fashion, was shown by their reproduction in the hypnotic trance.*

In this connection I may instance the case of Mrs. C. D., who suffers from a fixed fear of fainting. She cannot recall, even after two prolonged searching examinations, the first occasion when this fear developed, or why she has it, and is, therefore, ignorant of its genesis. Yet put into abstraction or light hypnosis she recalls vividly its first occurrence as the effect of an emotional scene of twenty years ago. The details of its psychological content come clearly into consciousness, and its meaning, as a fear of death, is remembered as a part of the original episode. That the fixed idea is a recurrence or partial memory of the original complex becomes logically plain and is recognized as such.

Instances of the reproduction in automatic script of *forgotten passages from books* are to be found in Mrs. Verrall's † elaborate records of her own automatic writings. Investigation showed that numerous pieces of English, Latin, and Greek script

* A remark made by the subject in the trance state, though passed over in the report as apparently inconsequential, has really much meaning when interpreted through that conception of the unconscious memory process which will be developed in succeeding chapters. The subject, while in the trance, claimed to be in a mental world wherein "is to be found, it is said, not only everything that has ever happened or will happen, but all thoughts, dreams, and imagination." In other words, in that psychical condition into which she passed, all the conserved conscious experiences of her life could be awakened into memory.

† *Proceedings of the S. P. R.*, October, 1906, Chap. XII.

were not original compositions but only forgotten passages from authors previously read.

Mrs. Holland's script records, as investigation seemed to show, the exact words expressing a personal sentiment contained in a letter written to her *twenty years* before and long forgotten. The letter proving this was accidentally discovered.*

The following instance of a forgotten experience is, in itself, common enough with everybody, but its recovery by automatic writing illustrates how conservation of the thousand and one simply *forgotten acts of everyday life* may still persist. It forces, too, a realization of the reason why it is possible that though an act may be forgotten at any given moment it may later at any time flash into the mind. It is still conserved.

B. C. A. had been vainly hunting for a bunch of keys which she had not seen or thought of for four months, having been in Europe. One day, soon after her return, while writing a letter to her son she was interrupted by her hand automatically and spontaneously writing the desired information.

* In the automatic script, which purported to be a spiritistic message from a dead friend named Annette, occurred the enigmatical sentence: "Tell her this comes from the friend who loved cradles and cradled things." The meaning of this was revealed by the above-mentioned letter to Mrs. Holland, written twenty years previously. It was from a friend of Annette's, and quoted an extract from Annette's will, which ran, "because I love cradles and cradled things." When Mrs. Holland was tearing up some old letters she came across this one. ("On the automatic writing of Mrs. Holland," by Miss Alice Johnson: *Proceedings of the S. P. R.*, June, 1908, pp. 288, 289.)

The letter to her son began as follows: "October 30, 19—. Dear Boy: I cannot find those keys—have hunted everywhere" . . . [Here the hand began to write the following, automatically.] *"O, I know—take a pencil"* [Here she did as she was bidden] *"you put those keys in the little box where X's watch is."*

In explanation B. C. A. sent me the following letter: "The keys were found in the box mentioned. I had hunted for them ever since coming home, October 4th. One key belonged to my box in the safety deposit vault and I had felt very troubled and anxious at not being able to find them. I have no recollection now of putting them where I found them." [Nor was recollection subsequently recovered.]

I could give from my own observation if it were necessary as many instances as could be desired of "automatic" reproductions of forgotten experiences of one kind or another the truth of which could be verified by notebook records or other evidence. By a forgotten experience of course is meant something more than what cannot for the moment be voluntarily recalled. I mean something that cannot be remembered at any moment nor under any conditions, *even after the memory has been prodded by the reproduction in the script*—something that is apparently absolutely forgotten. The experience may not only be of a trivial nature but something that happened long in the past and of the kind that is ordinarily absolutely forgotten. I

have often invoked the automatic writing (memories) of the subject to recover data elicited in the past in psychological examinations but which both I and the subject had forgotten. Reference to notes always verified the automatic memories. The records of automatic writing to be found in the literature are rich in reproductions showing conservation of forgotten experiences. In fact, given a good subject who can write automatically it is easy to obtain experimentally evidence of this kind at will.

Evidence from abstraction.—One of the most striking of artificial memory performances is the recovery of the details of inconsequential experiences of everyday life by inducing simple states of *abstraction* in normal people. It is often astonishing to see with what detail these experiences are conserved. A person may remember any given experience in a general way, such as what he does during the course of the day, but the minute details of the day he ordinarily forgets. Now, if he allows himself to fall into a passive state of abstraction, simply concentrating his attention upon a particular past moment, and gives free rein to all the associative memories belonging to that moment that float into his mind, at the same time taking care to forego all critical reflection upon them, it will be found that the number of details that will be recalled will be enormously greater than can be recovered by voluntary memory. Memories of the

details of each successive moment follow one another in continuous succession. This method requires some art and practice to be successfully carried out. In the state of abstraction attention to the environment must be completely excluded and concentrated upon the past moments which it is desired to recall. For instance, a young woman, a university student, had lost some money several days before the experiment and desired to learn what had become of it. She remembered, in a general way, that she had gone to the bank that day, had cashed some checks, made some purchases in the shops of the town, returned to the university, attended lectures, etc., and later had missed the money from her purse. Her memory was about as extensive as that of the ordinary person would be for similar events after the lapse of several days. I put her into a state of abstraction and evoked her memories in the way I have just described. The minuteness and vividness with which the details of each successive act in the day's experiences were recovered were remarkable, and, to the subject, quite astonishing. *As the memories arose she recognized them as being accurate, for she then remembered the events as having occurred,* just as one remembers any occurrence.* In abstraction, she remembered with great vividness every detail at the bank-

* It would have required a stenographer, whom I did not have, to record fully all these recovered memories. They would fill several printed pages, and I can give only a general résumé of them. Some weeks later the experiment was repeated and a record taken as fully as possible in long hand.

teller's window, where she placed her gloves, purse, and umbrella, the checks, the money, etc.; then there came memories of seating herself at a table in the bank, of placing her umbrella here, her purse there, etc.; of writing a letter, and doing other things; of absent-mindedly forgetting her gloves and leaving them on the table;* of going to a certain shop where, after looking at various articles and thinking certain thoughts and making certain remarks, she finally made certain purchases, giving a certain piece of money and receiving the change in coin of certain denominations; of seeing in her purse the exact denominations of the coins (ten and five-dollar gold pieces and the pieces of subsidiary coinage) which remained; then of going to another shop and similar experiences. Then of numerous details which she had forgotten; of other later incidents including lectures, exercising in the gymnasium, etc. Through it all ran the successive fortunes of her purse until the moment came when, looking into it, she found one of the five-dollar gold pieces gone. It became pretty clear that the piece had disappeared at a moment when the purse was out of her possession, a fact which she had not previously remembered but had believed the contrary. The hundred and one previously forgotten details which surged into her mind as vivid conscious recollections would take too long to narrate.

* Later in the day she discovered the loss of her gloves and, not remembering where she had left them, was obliged to retrace her steps in search of them.

(I have made quite a number of experiments of this kind with similar results. That the memories are not fabrications is shown by the fact that, as they arise, they become recollections in the sense that the subject can then consciously recall the events and place them in time and space as one does in ordinary memory, and particularly by the fact that many of them are often capable of confirmation.

I would here point out that the recovery of forgotten experiences by the method of *abstraction* differs in one important psychological respect from their recovery by *automatic writing*. In the former case the recalled experiences being brought back by associative memories enter into the associations and become true conscious recollections, like any other recollections, while in automatic writing the memories are reproduced in script without entering the personal consciousness at all and while the subject is still in ignorance. Often even after reading the script his memory still remains a blank. It is much as if one's ideas had been preserved on a phonographic record and later reproduced without awakening a memory of their original occurrence.* The significance of this difference for the theory

* Of course the memories recovered by either method may be fabrications as with ordinary voluntary memory, and the automatic script may stimulate the conscious memory to recollect the experiences in question. Nevertheless, while the memories are being recorded by the script, no "conscious" memory is present with subjects who are unaware of what the hand is writing.

of conservation I will point out later after we have considered some other modes of reproduction.)

Among the conserved forgotten experiences are often to be found fleeting thoughts, ideas, and perceptions, so insignificant and trifling that it would not be expected that they would be remembered. Some of them may have entered only the margin or fringe of the content of consciousness, and, therefore, the subject was only dimly aware of them. Some may have been so far outside the focus of awareness that there was no awareness of them at all, i. e., they were subconscious. Instructive examples of such conserved experiences may be found in persons who suffer from attacks of phobia, i. e., obsessions. The experiences to which I refer occur immediately before and during the attacks. After the attack the ideas of these periods are usually largely or wholly forgotten, particularly the ideas which were in the fringe of consciousness and the idea which, according to my observation, was the exciting cause of the attack. By the method of abstraction I have been able to recover the content of consciousness during the periods in question, including the fringe of consciousness, and thus discover the nature of the fear of which the patient was unaware because the idea was in the fringe.

Mrs. C. D., whom I have mentioned as having suffered intensely from attacks of fear, and Miss F. E., who is similarly afflicted with such attacks accompanied by the feeling of unreality, are instances in point. As is well known such attacks

come on suddenly in the midst of mental tranquillity, often without apparent cause so far as the patient can discover. While in the state of abstraction the thoughts, perceptions, and acts of the period just preceding and during the attack, as they successively occurred, could be evoked in these subjects in great detail and with striking vividness. The recovery of these memories has been always a surprise to the patient who, a moment before, had been utterly unable to recall them, and had declared the attack had developed without cause. In the case of Mrs. C. D. it was discovered in this way the real fear was of fainting and death, and in that of Miss F. E. of insanity. These ideas having been in the fringe of consciousness, or background of the mind, the subjects were at the time scarcely aware of them and, therefore, were ignorant of the true nature of their phobias, notwithstanding the overwhelming intensity of the attacks. Among the memories recovered in these and other cases I have always been able to find one of a thought or of a sensory stimulus from the environment which immediately preceded and which through association occasioned the attack. When this particular memory was recovered the patient, who had declared that the attack had developed without cause, at once recognized the original idea which was the cause of the attack, just as one recognizes the idea which causes one to blush. The idea sometimes has been a thought suggested by a casual and apparently insignificant word in a sentence occurring in a con-

versation on indifferent matters, or by a dimly conscious perception of the environment, sometimes an idea occurring as a secondary train of thought perhaps bearing upon some future course of action, and so on.

As instances of such dimly-conscious perceptions of the environment which I have found I may mention a gateway through which the subject was passing, or a bridge about to be crossed; these particular points in the environment being places where previous attacks had occurred. The perceptions which precipitated the attack may have been entirely subconscious and yet may be brought back to memory. With the pathogenesis of the attacks we are not now directly concerned. The point of interest for us lies in the fact that such forgotten casual ideas and perceptions, some of which had been actually subconscious and some had only entered the margin of the focus of attention may, notwithstanding the amnesia, be conserved; and the same is true of any succession of trivial ideas occurring at an inconsequential moment in a person's life.

However that may be, if you will try to recall in exact detail the thoughts and feelings which successively passed through your mind at any given moment say three or four weeks ago—or even days ago—and their accompanying acts, and then (if you can do this, which I very much doubt) try to give them in their original sequence, I think you will realize the force of these observations and appreciate the significance of the conservation of such

minute experiences and of their reproduction in abstraction.

Evidence furnished by the method of hypnosis.—It is almost common knowledge that when a person is hypnotized—whether lightly or deeply—he may be able to remember once well-known events of his conscious life which he has totally forgotten in the full waking state. It is not so generally known that he may also be able to recall conscious events of which he was never consciously aware, that is to say, experiences which were entirely subconscious. The same is true, of course, of forgotten experiences which originally had entered only the margin of the content of consciousness and of which he was dimly aware. Among the experiences thus recalled may be perceptions of minute details of the environment which escape the attentive notice of the individual, or they may be thoughts which were in the background of the mind and, therefore, never in the full light of attention. You must not fall into the common error of believing every hypnotized person can do this, or that any person can do it in any state of hypnosis. There are various "degrees" or states of hypnosis representing different conditions of dissociation and synthesis. One person may successively be put into several different states; many persons can be put into only one, but the degree of dissociation and capacity for synthesis in each state and in every person varies very much, and, indeed, according to the technical devices

employed. Each state is apt to exhibit different systems of memories, that is, to synthesize (recall) past conserved experiences in a different degree. What cannot be recalled in one state may be in another. We may say as a general principle that *theoretically* any experience that has been conserved can be recalled in some state, and, conversely, there is theoretically some state in which any conserved experience can be recalled. Practically, of course, we can never induce a state which synthesizes all conserved experiences, nor always one in which any given experience is synthesized. I shall later, in connection with particular types of conscious states, give examples of hypnotic memories showing conservation of such experiences as I have just mentioned. The point you will not lose sight of is that we are concerned with hypnotic phenomena only so far as they may be evidence of the conservation of forgotten experiences.

There is a class of hypnotic memory phenomena which acquire additional importance because of the bearing they have upon the *psycho-genesis* of certain pathological conditions. They show the conservation of the details of an episode in their original chronological order with an exactness that is beyond the powers of voluntary memory to reproduce. These phenomena consist of the **realistic reproduction** of certain emotional episodes which as a whole may or may not be forgotten. The reproduction is realistic in the sense that the episodes

are acted over again by the individual as if once more he were actually experiencing them. Apparently every detail is reproduced, including the emotion with its facial expressions and its other physiological manifestations, and pathological disturbances like pain, paralysis, anesthesia, movements, etc. I will cite the following three examples:

M——l, a Russian, living in this country, suffers from psycholeptic attacks dating from an episode which occurred seven years previously and *which he has completely forgotten.* At that time he was living in Russia. It happened that after returning from a ball he was sent back late at night by his employer, a woman, to look for a ring which she had lost in the ballroom. His way led over a lonely road by a graveyard. As he was passing this place he heard footsteps behind him and became frightened. Overcome with terror he fell, partially unconscious, and his whole right side became affected with spasms and paralysis. He was picked up in this condition and taken to a hospital. Each year since that time he has had recurring attacks of spasms and paralysis.*

In *hypnosis* he remembers and relates a dream. This dream is one which recurs periodically but is *forgotten after waking from sleep.* This is the dream: He is back in his native land; it is the night of the ball; he sees his employer with outstretched hand commanding him to go search for the ring.

* Sidis, Prince, and Linenthal: A contribution to the Pathology of Hysteria, *Boston Medical and Surgical Journal*, June 23, 1904.

Once more he makes his way along the lonely road; he hears footsteps; he becomes frightened, falls, and then awakes, with entire oblivion for the dream, to find his right side paralyzed and in spasms.

The following experiment is now made. By suggestion in hypnosis he is made to believe that he is fifteen years of age. As a consequence in his hypnotic dream he is once more living in Russia before he had learned English. It is now found that he has spontaneously lost all knowledge of the English language and can speak only Russian. He is told it is the night of the ball and, as in a dream, he is carried successively through the different events of that night. Finally he returns in search of the ring, passes again over the lonely road, hears the footsteps and becomes frightened. At this point his face is suddenly contorted with an expression of fright, the whole right side becomes paralyzed and anesthetic, and the muscles of face, arm, and leg affected with clonic spasms. At the same time he moans with pain which he experiences in his side, which he hurt when he fell. Though consciousness is confused he answers questions and describes the pain which he feels. On being awakened all passes off.

Mrs. W. on her return to Boston after an absence in Europe happened to pass by a certain house on her way to her hotel; the house (a private hospital) was one with which she had very distressing associations. On leaving the steamer she took a street car which she left a block distant from the

hotel. She walked this distance and as she passed the house she was seized with a sudden attack of fear, dizziness, palpitation, etc. Although it is beside the point I may say that she had not noticed the locality and did not consciously recognize the house until the attack developed. The attack was, therefore, induced by a subconscious perception.* She recalls the incident and describes the attack, remembers that it occurred at this particular spot, but without further detail.

Now in hypnosis she is taken back to the day of her arrival on the steamship. In imagination, as in a sort of dream, she is living over again that day; she disembarks from the ship, enters the street car in which she rides a certain distance; she leaves the car at the point nearest her destination and proceeds to walk the remainder of the distance; suddenly her face exhibits the liveliest emotion; she becomes strongly agitated and her respiration is short and quick; her head and eyes turn toward the left and upward, as if in search of a cause, and she exclaims, "Yes, that's it, that's it," as she recognizes in imagination the house which had been the scene of her previous distress. Then the attack subsides as she passes by, continuing her way toward her hotel.

Mrs. E. B. suffers from traumatic hysteria as the

* The Dissociation of a Personality, by Morton Prince. (New York; Longmans, Green & Co., 1906.) P. 77. Hereafter, when this work is referred to, the title will be indicated simply by "The Dissociation."

result of a slight but emotional accident—a fall—when alighting from a railway train. The accident resulted in a sprained shoulder and neuritis of the arm. She fully remembers the accident and describes it as any one might.

When put into hypnosis, however, the memory assumes a different character. She is taken back in imagination to the scene of the accident. Once more the train is entering the station; she leaves the car, steps from the platform upon a truck; then, unawares, steps off the truck and falls to the ground. As she falls her face suddenly becomes distorted with fear; tears stream down her cheeks, which become suffused; her heart palpitates; she suffers again acute pain in her arm, and so on. Her physical and mental anguish is painful to look upon. Though I try to persuade her that she is not hurt and that the accident is a delusion my effort is not very successful.

In this experiment, as in the others, there is substantially a reproduction in all its details of the content of consciousness which obtained at the time of the accident, and also of the emotion and its physiological manifestations—all were faithfully conserved. Further, each event follows in the same chronological sequence as in the original experience.

But in these observations the reproduction differs somewhat from that of ordinary memory. It is in the form of a dream, hypnotic or normal, and the subject goes back to the time of the experience, which he thinks is the present, and actually lives

over again the original episode. Unlike the conditions of ordinary memory the whole content of his consciousness is practically limited to that which originally was present, all else, the present and the intervening past, being dissociated and excluded. The original psychological processes and their psycho-physiological accompaniments (pain, paralysis, anesthesia, spasms, etc.) repeat themselves as if the present were the past. Plainly, for such a reproduction, the original episode must have left conserved dispositions of some kind which when excited were capable of reënacting the episode in all its psycho-physiological details. From a consideration of such phenomena it is easy to understand how certain psycho-neuroses may be properly regarded as memories of certain past experiences. The experiences are conserved and under certain conditions reproduced from time to time.

I may cite one other experiment dealing with the conservation of the details of a day's experiences after the lapse of several months. The subject was a little girl who suffered from hysterical tics. Hoping to discover the exciting cause of her nervous disturbance, I put her into deep hypnosis, and evoked the memories of the events of the day on which her disease developed, *about six months previously.* It was astonishing to hear her recall a continuous series of precise thoughts and acts, many of them trivial, of the kind that would be transient and forgotten by anybody. She began

with the events of the early morning, giving her own thoughts and acts; the remarks of her father and mother, describing exactly the location in the house at the time of each member of the family; her arrival at school; the several lessons of the day; the remarks of the teacher; the happenings during recess; her final entry into the laboratory; and the sudden onset of the tic. Everything was given in chronological order. The memories were vivid and, as they came up into her mind, were recognized as true recollections.* All this was forgotten when she was awake, that is to say, although conserved, it could not be reproduced. There was no way, of course, of determining the accuracy of these memories and, therefore, their correctness lacks scientific proof. On the other hand, the facts, which are in entire correspondence with similar results obtained under conditions where confirmation is possible, have value as cumulative evidence.†

It is not difficult to arrange experiments which will test the accuracy with which the minute details of experiences may be conserved when reproduction

* Undoubtedly much was forgotten and, therefore, there must have been hiatuses of which she was not aware; but the remarkable thing is that not only so much, but so much that was inconsequential and evanescent was recalled. If additional technical methods had been employed probably more memories could have been recalled.

† The objection will probably be made that the memories and statements of hypnotized persons are unreliable on several grounds, chiefly suggestibility, liability to illusions and, in some cases, tendency to fabrications. This criticism is more likely to come from those who have had a special rather than a wide experience with hypnotism.

is at fault. A simple test is to have a suitable subject endeavor to repeat *verbatim* the contents of a letter written by him at some preceding time—one week, two weeks, a month, or more. Few people, of course, can do this. If, now, the subject is a suitable one for the abstraction or hypnotic method it may be that he will be able to reproduce by one or the other method the test letter, word for word; a comparison of the reproduction with the letter will, of course, determine the accuracy of the memory. In such an experiment I have succeeded in getting two subjects, Miss B.* and B. C. A., to repeat *verbatim* the contents of fairly long letters, and this even, on certain occasions, when, on account of the subject being a dissociated personality, there was no recollection of the letter at all, not even that it had been written. Such minute reproduction affords further evidence that the conservation of experiences may be much more complete and exact than ordinary conscious memory would lead us to suppose.

Evidence from hallucinatory phenomena.—I may mention one more example of conservation of a forgotten experience of everyday life as it is an example or mode of reproduction which differs in certain important respects both from that of ordinary memory and that observed under the artificial

* Miss B., in these pages, always refers to Miss Beauchamp, an account of whose case is given in "The Dissociation." In this connection cf. pp. 501, 81 and 238 of that work.

methods thus far described. This mode is that of a *visual* or an *auditory hallucination* which may be an exact reproduction in vividness and detail of the original experience. It is a type of a certain class of memory phenomena. One of my subjects, while in a condition of considerable stress of mind owing to the recurrence of the anniversary of her wedding-day, had a vision of her deceased husband, who addressed to her a certain consoling message. It afterwards transpired that this message was an actual reproduction of the words which a friend, in the course of a conversation some months previously, had quoted to her as the words of her own husband just before his death. In the vision the words were put into the mouth of another person, the subject's husband, and were actually heard as an hallucination. Under the peculiar circumstances of their occurrence, however, these words awakened no sense of familiarity; nor did she recognize the source of the words until the automatic writing, which I later obtained, described the circumstances and details of the original episode. Then the original experience came back vividly to memory. On the other hand, the "automatic writing" not only remembered the experience but recognized the connection between it and the hallucination. (The truth of the writing is corroborated by the written testimony of the other party to the conversation.)

Although such types of hallucinatory memories are not actual reproductions of an experience but rather translated representations, yet they show

the experience must have been conserved in order to have determined the representation. The actual experience, as we shall see later, is translated into a visual or auditory form which pictures or verbally expresses it, as the case may be. This type of hallucination is common. That which is translated may be previous thoughts, or perceptions received through another sense. Thus Mrs. Holland records a visual hallucination which pictured a verbal description previously narrated to her by a friend, but forgotten. The hallucination included "the figure of a very tall thin man, dressed in gray, standing with his back to the fire. He had a long face, I think a mustache—certainly no beard—and suggested young middle age." . . . On a second occasion "the tall figure in gray was lying on the bed in a very flung-down, slack-jointed attitude. The face was turned from me, the right arm hanging back across the body which lay on the left side. I started violently and my foot seemed to strike an empty bottle on the floor."

There is very little doubt that these visions of Mrs. Holland's represented Mr. Gurney, who had died from an accidental dose of chloroform. Mrs. Holland "took very little interest" in Mr. Gurney, hence she had entirely forgotten that the main facts of his death had been told to her a few months previously by the narrator, Miss Alice Johnson.*

In an hallucination of this sort we have a dramatic pictorial representation of previous though

* *Proceedings of the S. P. R.*, June, 1908.

forgotten knowledge which must have determined it. In order to have determined the hallucination the knowledge must have been conserved somehow. I have frequently observed a similar reproduction of a forgotten experience, which was not visual, through translation into a newly created *visual* representation in the form of an artificial hallucination. The following is of this kind: Miss B., looking into a crystal,* saw a scene laid in a wood near a lake, etc. Several figures appeared in this scene, which was that of a murder. Although she had no recollection of anything that could have given rise to the hallucination, investigation showed that the original experience was to be found in one of Marie Correlli's novels which she had read but forgotten. The vision was a correct representation of the scene as described in the book.

In suitable subjects almost any past experience, whether forgotten or not, can be reproduced in this way if conserved, and observation shows that the number which are conserved is enormous. I shall

* Crystal or artificial visions are hallucinatory phenomena which, like automatic writing, can be cultivated by some people. The common technic is to have a person look into a crystal, at the same time concentrating the mind, or putting himself into a state of abstraction. Under these conditions the subject sees a vision, i. e., has a visual hallucination. The vision may be of some person or place, or may represent a scene which may be enacted. Because of the use of a crystal such hallucinations are called "crystal visions," but a crystal is not requisite; any reflecting surface may be sufficient, or even the concentration of the attention. The crystal or other object used of course acts only by aiding the concentration of attention and by force of suggestion.—*The subconscious is tapped.*

have occasion to cite further examples in other connections. The phenomenon of translation we shall find when we come to study it, as we shall do in another lecture, throws light upon the nature of conservation for here we are dealing with something more than simple reproduction; what is conserved becomes elaborated into a new composition.

Evidence obtained from dreams.—Another not uncommon mode in which forgotten experiences are recovered is through dreams. The content of the dream may, as Freud has shown, be a cryptic and symbolical expression or representation of the experience,* or a visualized representation or obvious symbolism, much as a painted picture may be a symbolized expression of an idea,† or it may be a realistic reproduction in the sense that the subject lives over again the actual experience. A relative of mine gave me a very accurate description of a person whom she had never seen from a dream in which he appeared. After describing his hair, eyes, contour of face, mouth, etc., she ended with the words, "He looks like a cross between a Scotchman and an Irishman." After she had most positively insisted that she had never seen this person or heard him described—against my protest to the contrary—I reminded her that I had myself described him to her only a few days before

* Freud: Traumdeutung, 2 aufl. 1909.

† Morton Prince: The Mechanism and Interpretation of Dreams. *The Journal of Abnormal Psychology*, October-November, 1910.

in the identical words, ending my description with the remark, "He looks like a cross between a Scotchman and an Irishman." Even then she could not recall the fact. Von Bechterew has recorded the case of a man who frequently after hearing an opera dreamed the whole opera through.* One subject of mine frequently dreamed over again in very minute detail, after an interval of eight or nine months, the scenes attending the deathbed of a relative. Indeed, in the dream she realistically lived them again in a fashion similar to that of hypnotic dreams such as I have related. Although she had not forgotten these scenes it is highly improbable that she could have voluntarily recalled them, particularly after the lapse of so long a time, without the aid of the dream, so rich was it in detail, with each event in its chronological order.

Dream reproductions, whether in a symbolic form or not, are too common to need further statement. I would merely point out that the frequency with which childhood's experiences occur in dreams is further evidence of the conservation of these early experiences. The symbolic dream, cryptic or obvious, deserves, however, special consideration because of the data it offers to the problem of the nature of conservation which we shall later study. In this type of dream, if the fundamental principle of the theory of Freud is correct, the content is a

* Zentralblatt für Nervenheilkunde und Psychiatrie; 1909, Heft 12.

symbolical continuation in some form of an antecedent thought (experience) of the dreamer.* When this thought, which may be forgotten, is recovered the symbolic character of the dream, in many cases, is recognized beyond reasonable doubt.† If this principle is well established, and nearly all investigators are in accord on this point, though we need not always accept the given interpretation of individual dreams—if the principle is sound, then it follows that symbolism includes memory of the original experience which must be conserved. So that even this type of dream offers evidence of conservation of experiences for which there may be total loss of memory (amnesia).

Before closing this lecture I will return to the point which I temporarily passed by, namely, the significance of the *difference in the form of reproduction* according as whether it is by automatic writing or through associative memories in abstraction. In the latter case, as we have seen, the memories are identical in form and principle with those of everyday life. They enter the personal consciousness and become conscious memories in the sense that the individual personally remembers the experience in question. Abstraction may be regarded simply as a favorable condition or moment

* According to Freud and his school it is always the imaginary fulfilment of a suppressed wish, almost always sexual. For our purposes it is not necessary to inquire into the correctness of this interpretation or the details of the Freudian theory.

† For an example, see p. 98.

when the subject remembers what he had at another previous moment forgotten. We have seen also that the same thing is true of remembering in hypnosis (excepting those special realistic reproductions when the subject enters a dream-like or somnambulistic state and lives over again the past experience in question). In automatic writing, on the other hand, the reproduction is by a secondary process entirely separate and independent of the personal consciousness. In the examples I cited the latter was in entire ignorance of the reproduction which did not become a personally conscious memory. At the very same moment when the experiences could not be voluntarily remembered, and without a change in the moment's consciousness, something was tapped, as it were, and thereby they were graphically revealed without the knowledge of the subject, without memory of them being introduced into the personal consciousness, and even without the subject being able to remember the incident after reading the automatic script. Even this stimulus failed to bring back the desired phase of consciousness. It was very much like surreptitiously inserting your hand into the pocket of another and secretly withdrawing an object which he thinks he has lost. What really happened was this: a secondary process was awakened and this process (of which the principal or personal consciousness was unaware) revealed the memory lost by the personal consciousness. At least this is the interpreta-

tion which is the one which all the phenomena of this kind pertaining to subconscious manifestations compel us to draw.* At any rate the automatic script showed that somehow and somewhere *outside the personal consciousness* the experiences were conserved and under certain conditions could be reproduced.

We now also see that the same principle of reproduction by a secondary process holds in hallucinatory phenomena whether artificial or spontaneous, and in many dreams. When a person looking into a crystal sees a scene which is a truthful pictorial representation of an actual past experience which he does not consciously remember, it follows that that visual hallucination must be induced and constructed by some secondary subconscious process outside of and independent of the processes involved in his personal consciousness. And, likewise, when a dream is a translation of a forgotten experience into symbolical terms it follows that there must be, underlying the dream consciousness, some subconscious process which continues and translates the original experience into and constructs the dream.

This being so we are forced to two conclusions: first, in all these types of phenomena the secondary process must in some way be closely related to the

* If the physiological interpretation be maintained, i. e., that the script was produced by a pure physiological process, this phenomenon would be a crucial demonstration of the nature of conservation, that it is in the form of physical alterations in nervous structure. I do not believe, however, that this interpretation can be maintained.

original experience in order to reproduce it; and, second, a mental experience must be conserved in some form which permits of a subconscious process reproducing the experience in one or other of the various forms in which memory appears. Further than this I will not go at present, not until we have more extensively reviewed the number and kinds of mental experiences that may be conserved. This we will do in the next lecture.

LECTURE III

CONSERVATION OF FORGOTTEN EXPERIENCES OF NORMAL, ARTIFICIAL, AND PATHOLOGICAL LIFE

I. Normal Life (Continued)

I have directed your attention up to this point to the conservation of experiences which at the time of their occurrence, although lost beyond voluntary recall, for the most part occupied the focus of attention of the individual—were within the full light of consciousness. If these experiences were the only ones which were subject to conservation—and I would have you still bear in mind that I am using the term only in the limited sense of the ability to recover an experience in some favorable condition, or moment of consciousness, or through some fortunate or technical mode of reproduction—if, I say, these were the only ones to be conserved, then the conservation of the experiences which make up our mental lives would be considerably curtailed. It so happens, however, that a large part of our mental activity is occupied with acts of which at the moment we are only dimly aware—or half aware—in that they do not occupy the focus of attention. Some of these are what we call absent-minded acts. Again, many sensations and perceptions do not en-

ter the focus of attention, so that we are either not aware of them, or, if we are, there is so little vividness attached to them that they are almost immediately lost to voluntary memory. The same is true of certain trains of thoughts which course through the mind while one's attention is concentrated on some other line of thought. They are sometimes described as being in the background of the mind. Then, again, we have our dream life, and that of reverie, and the important artificial state of hypnosis; also certain pathological states to which some individuals are subject, such as intoxication, hysterical crises, deliria, and multiple personality. Accordingly it is important in any investigation into the extent of the field of conservation to inquire whether all this mental life is only fleeting, evanescent, psychological experience, or whether it is subject to the same principle of conservation. If the latter be the case it presages consequences which are portentous in the possible multiplicity and manifoldness of the elements which may enter into and may govern the mechanism of mental processes. But let me not get ahead of my exposition.

Absent-minded acts.—In a study made some time ago I recorded the reproduction, as a crystal vision, of an absent-minded act, i. e., one which had not fully entered the focus of consciousness during deep concentration of the attention. It is a type of numerous experiments of this kind that I have made. Miss B. is directed to look into a crystal. She sees

therein a vision of herself walking along a particular street in Boston in a brown study. She sees herself take out of her pocket some bank notes, tear them up, and throw them into the street. Now this artificial hallucination, or vision, was a picture of an actual occurrence; in an absent-minded reverie the subject had actually performed this very act under the circumstances portrayed in the vision and had retained no memory of it.*

Similarly I have frequently recovered knowledge of the whereabouts of articles mislaid absent-mindedly. Sometimes the method used has been, as in the above examples, that of crystal gazing or artificial hallucinations; sometimes hypnotism, sometimes automatic writing, etc. By the last two methods not only the forgotten acts but the ideas and feelings which were outside the focus of attention, but in the fringe of consciousness, and prompted the acts are described. It is needless to give the details of the observations; it suffices to say that each minute detail of the absent-minded act and the thoughts and feelings that determined it are described or mirrored, as the case may be. The point of importance is that concentration of attention is not essential for conservation, and, therefore, among the vast mass of the conserved experiences of life may be found many which, though

* For a full account of this experiment, see An Experimental Study of Visions, *Brain*, Winter Number, 1898; The Dissociation, pp. 81, 82.

once conscious, only entered the margin of awareness (not the focus of attention) and never were subject to voluntary recollection. In the absence of attentive awareness at the time for such an experience (and therefore of recollection), we often can only be assured that it ever occurred by circumstantial evidence. When this assurance is wanting we are tempted to deny its occurrence and our responsibility, but experiment shows that the process of conservation, like the dictagraph, is a more faithful custodian of our experiences than are our voluntary memories.

Subconscious perceptions.—It is not difficult to show that perceptions of the environment which *never even entered the fringe of the personal consciousness, i. e., of which the individual was never even dimly aware,* may be conserved. Indeed, the demonstration of their conservation is one of the important pieces of evidence for the occurrence of coconscious perception and, therefore, of the splitting of consciousness. Mrs. Holland, both by automatic writing and in hypnosis, describes perceptions of the environment (objects seen, etc.) of which she was not aware at the time. Miss B. and B. C. A. recall, in hypnosis and by automatic writing, paragraphs in the newspapers read through casual glances without awareness thereof. The same is true of perceptions of the environment experienced under experimental conditions as well as fortuitously. I have made a large number of experiments

and other observations of this kind, and have been in the habit of demonstrating before the students at my lectures this evidence of coconscious perception. A simple method is to ask a suitable subject to describe the dress of some person in the audience, or of objects in the environment; if he is unable to do this, then to attempt to obtain as minute a description as possible by automatic writing or verbally after he has been hypnotized. It is often quite surprising to note with what detail the objects which almost entirely escaped conscious observation are subconsciously perceived and remembered. Sometimes the descriptions of my students have been quite embarrassing from their naïve truthfulness to nature.

The following is an example of such an observation: I asked B. C. A. (without warning and after having covered her eyes) to describe the dress of a friend who was present and with whom she had been conversing for perhaps some twenty minutes. She was unable to do so beyond saying that he wore dark clothes. I then found that I myself was unable to give a more detailed description of his dress, although we had lunched and been together about two hours. B. C. A. was then asked to write a description automatically. Her hand wrote as follows (she was unaware that her hand was writing):

"He has on a dark greenish gray suit, a stripe in it—little rough stripe; black bow-cravat; shirt with three little stripes in it; black laced shoes; false teeth; one finger gone; three buttons on his coat."

The written description was absolutely correct.

The stripes in the coat were almost invisible. I had not noticed his teeth or the loss of a finger and we had to count the buttons to make sure of their number owing to their partial concealment by the folds of the unbuttoned coat. The shoe strings I am sure, under the conditions, would have escaped nearly everyone's observation.

Subconscious perceptions even more than absent-minded acts offer some of the most interesting phenomena of conservation, for these phenomena give evidence of the ability, under certain conditions, to reproduce, in one mode or another, experiences which were never a phase of the personal consciousness, never entered even the fringe of the content of this consciousness and of which, therefore, we were never aware. For this reason they are not, properly speaking, forgotten experiences. Their reproduction sometimes produces dramatic effects. The following is an instance: B. C. A., waking one night out of a sound sleep, saw a vision of a young girl dressed in white, standing at the foot of her bed. The vision was extraordinarily vivid, the face so distinct that she was able to give a detailed description of it. She had no recollection of having seen the face before, and it awakened no sense of familiarity. Suspecting, for certain reasons, the figure to be that of a young girl who had recently died and whom I knew that B. C. A. had never known and was not aware that she had ever seen, I placed before her a collection of a dozen or more photographs of different people among which was

one of this girl. This photograph she picked out as the one which most resembled the vision (it was a poor likeness) and automatic writing confirmed most positively the choice. Now it transpired that she had passed by this girl on one occasion while the latter was talking to me in the hall of my house, but she had purposely, for certain reasons, not looked at her. Subconsciously, however, she had seen her since she could give, both in hypnosis and by automatic writing, an accurate account of the incident, which I also remembered. B. C. A., however, had no recollection of it. The subconscious perception was later reproduced (after having undergone secondary elaboration) as a vision.

Similarly I have known paragraphs read in the newspapers out of the corner of her eye, so to speak, and probably by casual glances, not only, as I have said, to be recalled in hypnosis and by automatic writing, but to be reproduced with more or less elaboration in her dreams. She had, as the evidence showed, no awareness at the time of having read these paragraphs and no after recollection of the same.

Experimentally, as I have said, it is possible to demonstrate other phenomena which are the same in principle. The experiment consists, after surreptitiously placing objects under proper precautions in the peripheral field of vision, in having the subject fix his eyes on central vision and his attention distracted from the environment by intense concentration or reading. Immediately after re-

moving the objects it is determined that the subject did not consciously perceive them. But in hypnosis or by other methods it is found that memory for perceptions of the peripheral objects returns, i. e., the perceptions are reproduced. Auditory stimuli may be used as tests with similar results.

Likewise, with Miss B., I have frequently obtained reproductions of perceptions of which at the time she was unaware. This has been either under similar experimental conditions, or under accidental circumstances when I could confirm the accuracy of the reproductions. For instance, to cite one out of numerous examples, on one occasion I saw her pass by in the street while I was standing on the door-step of a house some fifteen or twenty feet away, well outside the line of her central vision. She was in a brown study. I called to her three times saying, "Good morning, Miss B.," laying the accent each time on a different word. She did not hear me and later had no recollection of the episode. In hypnosis she recalled the circumstances accurately and reproduced my words with the accents properly placed. Such observations and experiments I have frequently made. They can be varied indefinitely in form and condition.

The phenomenon of subconscious perception of sensory *stimulations applied to anesthetic areas* tactile, visual, etc.), in hysterics, first demonstrated by Janet, is of the same order, but has been so often described that only a reference to it is necessary. I mention examples here merely that the

different kinds of phenomena that may be brought within the sphere of memory shall be mentioned. For instance, Mrs. E. B.* has an hysterical loss of sensibility in the hand which, in consequence, can be severely pinched or pricked, or an object placed in it, etc., without her being aware of the fact. Notwithstanding this absence of awareness these tactile experiences were conserved since an accurate detailed memory of them is recovered in hypnosis, or manifested through automatic writing. The same phenomenon can be demonstrated in Mrs. R., whose right arm is anesthetic.† The same conservation of subconscious perceptions can be experimentally demonstrated during automatic writing. At such times the writing hand becomes anesthetic and if a screen is interposed so that the subject cannot see the hand he is not aware of any stimulations applied to it. Nevertheless such sensory stimulations—a prick or a pinch or more complicated impressions—are conserved, for the hand will accurately describe all that is done.

An observation which I made on one of my subjects probably belongs here rather than to the preceding types. Several different objects were successively brought into the field of vision, but so far toward the periphery that they could not be sufficiently clearly seen to be identified. In hypnosis, however, they were accurately described, showing

* The Dissociation, p. 77.

† For numerous observations of this kind, see Pierre Janet: The Mental States of Hystericals.

the conservation of perceptions that did not enter the vivid awareness or clear perception of the subject.

It is true, as a study of the coconscious would show, that such phenomena of anesthesia and unrecognized perceptions are dependent upon a dissociation of consciousness and upon coconscious perception. But this is a matter of mechanism with which we are not now concerned. The point simply is that subconscious perceptions which never entered the awareness of the personal consciousness may be conserved.

I will cite one more observation, one in which the reproduction was through secondary translation, as we shall see later that it belongs to a class which enables us to determine the nature of conservation.

B. C. A., actuated by curiosity, looked into a crystal and saw there some printed words which had no meaning for her whatever and awakened no memory of any previous experience. It was afterward found that these words represented a cablegram message which she unconsciously overheard while it was being transmitted over the telephone to the telegraph office by my secretary in the next room. She had no recollection of having heard the words, as she was absorbed in reading a book at the time. The correctness of the visual reproduction is shown, not only by automatic writing which remembered and recorded the whole experience, but also by comparison with the original cablegram.

Again, in other experiments there appear, in the crystal, visions rich in detail of persons whom she

does not remember having seen, although it can be proved that she actually has seen them.

The reproduction of subconscious perceptions and forgotten knowledge in dreams, visions, hypnosis, trance states, by automatic writing, etc., is interesting apart from the theory of memory. Facts of this kind offer a rational interpretation of many well-authenticated phenomena exploited in spiritistic literature. Much of the surprising information given by planchette, table rapping, and similar devices commonly employed by mediums, depends upon the translation of forgotten dormant experiences into manifestations of this sort. In clinical medicine, too, we can often learn, through reproductions obtained by special methods of investigation, the origin of obsessions and other ideas which otherwise are unintelligible.

Dreams and somnambulisms.—Many people remember their dreams poorly or not at all, and, in the latter case, are under the belief that they do not dream. But often circumstantial evidence, such as talking in their sleep, shows that they do dream. Now, though ordinarily they cannot remember the dreams, by changing the waking state to an hypnotic one, or through the device of crystal visions or automatic writing, it is possible in some people to reproduce the whole dream. Amnesia for dreams, therefore, cannot be taken as evidence that they do not occur, and forgotten dream consciousness is subject to the same principles of conservation and

reproduction as the experiences of waking life. Thus in B. C. A. dreams totally forgotten on awakening are easily recovered in hypnosis and in crystal visions.* In the case of M——l, which I cited to you a little while ago, the forgotten dream in which he lived over again the original episode which led to the development of his hysterical condition and which when repeated in the dream induced each successive attack, was easily recovered in hypnosis. The same was true of the forgotten dreams of Mrs. H. and Miss B.

The reproduction of nocturnal somnambulistic acts and the ideas which occupied the content of consciousness of the somnambulist can be effected in the same manner. I have quite a collection of observation of this kind. In the study of visions,† to which I have already referred, may be found the observation where Miss B., looking into a crystal, sees herself walking in her sleep and hiding some money under a tablecloth and books lying on the table. The money (which was supposed to have been lost) was found where it was seen in the vision.

In my notebook are the records of numerous artificial hallucinations of this kind which reproduce sleep-walking acts of B. C. A. To cite one instance: in the crystal she sees herself arise from her bed, turn on the lights, descend the stairs, enter one of the lower rooms, sit by the fire in deep, pensive re-

* The Mechanism and Interpretation of Dreams, loc. cit.

† Loc. cit. See p. 51.

flection, then get up and dance merrily as her somnambulistic mood changes. Presently, as the cinematograph-like picture unfolds itself in the crystal, she sees herself go to the writing table, write two letters, ascend the stairs, dropping one letter on the way,* reënter her room, open a glove box, place the remaining letter under the gloves, and finally put out the lights and get into bed when, with the advent of sleep, the vision ends. In the vision the changing expression of her face displays each successive mood. In hypnosis also the scene is remembered and then even the thoughts which accompanied each act of the somnambulist are described. Here again, then, we have evidence that even forgotten dreams and somnambulistic thoughts are not lost but under certain special conditions can be revived in one mode or another.

II. Forgotten Experiences of Artificial and Pathological States

The experiences that I have thus far cited in evidence of the principle of the conservation of dormant experiences that cannot be voluntarily recalled have been drawn almost entirely from normal everyday life. We now come to a series of facts which are very important in that they show that what is true of the experiences of everyday life is also true of those of *artificial* and *pathological* states of which the normal personal consciousness has no cognizance. These facts are also vital for

* See Lecture VI, p. 185.

the comprehension of post-hypnotic phenomena, of amnesia, multiple personality, and allied dissociated states. Let us consider some of the states from the point of view of conservation.

Artificial states.—After a person passes from one *dissociated state* to another, or from a dissociated state to the full waking state, it is commonly found that there is amnesia for the previous state. This is a general principle. The forgetting of dreams is an example from normal life. For the psychological state of sleep in which dreams occur is one of normal dissociation of consciousness by which the perception of the environment, and the great mass of life's experiences, can no longer be brought within the content of the dream consciousness. Hence there is a general tendency to the development of amnesia for dreams after waking when the normal synthesis of the personality has been established. Yet, as we have seen, forgotten dreams can generally be recalled in hypnosis or by some other technical method (e. g., crystal visions and abstraction). Now *hypnosis* is an artificially dissociated state. After passing from one hypnotic state to another,* or after waking, it is very common to find complete

* Gurney was among the first to demonstrate the induction of several states in the same subject. He was able to obtain three different hypnotic states (Proceedings S. P. R., Vol. IV, p. 515), and Mrs. Sidgwick and Miss Johnson eight in one individual, each with amnesia for the other. Janet, of course, demonstrated the same phenomena. In the cases of Miss B and B. C. A. I obtained a large number of such states.

amnesia for the whole of the experience belonging to the previous hypnotic state. By no effort whatsoever can it be recalled and this inability persists during the remainder of the life of the subject. And yet those hypnotic experiences may have been very extensive, particularly if the subject has been hypnotized a great many times. Nevertheless, it is easy to demonstrate that they are conserved and therefore, like all conserved experiences, potentially still existing, subject to recall under favoring conditions; for, as is well known, if the subject be rehypnotized they are recalled as normal memories. With the restitution of the hypnotic state the memories which were dormant become synthesized with the hypnotic personality and conscious.

The method of producing crystal visions may also be used to demonstrate the dormant conservation of experiences originating in hypnotic states. By this method and that of automatic writing, as I have already explained, the memories may be made to reveal themselves, without inducing recollection, at the very moment when the subject cannot voluntarily recall them. The subject, of course, being ignorant of what happened in hypnosis cannot recognize the visions as pictorial memories. In illustration of this I would recall the observation in the case of Miss B. where, in such an artificial vision, she saw herself sitting on a sofa smoking a cigarette.* This vision represented an incident which

* Morton Prince: The Dissociation, p. 55; also An Experimental Study of Visions, *Brain*, Winter Number, 1898.

occurred during one of the subject's hypnotic states when she had smoked a cigarette. Naturally Miss B., in her ignorance of the facts, denied the truthfulness of the vision. Other examples of a like kind might be cited if it were necessary.

By automatic writing, also, evidence of the same principle may be obtained. The conserved memories are *tapped,* so to speak. Thus I suggest to Mrs. R. in hypnosis that after waking she shall write certain verses or sentences. After being awakened she reproduces automatically, as directed, the desired verses or sentences which, of course, belonged to her hypnotic experiences.* In other words, although the personal consciousness did not remember the hypnotic experience of having received the command and of having given the promise to write the verses, etc., the automatic writing by the act of fulfilling the command showed that all this was conserved; here again was evidence of conservation, in some form, of an experience at the very moment when the personal consciousness was unable to voluntarily recall what had taken place in hypnosis. Such experiments may be varied indefinitely.

The following is an instance of the same phenomenon obtained by tapping without the use of previous suggestion in hypnosis: subject B. C. A. One of the hypnotic states, b, was waked up to become B, this change being followed, as usual, by am-

* Some of the Revelations of Hypnotism, *Boston Medical and Surgical Journal,* May 22, 1890.

nesia. By means of automatic writing an accurate account was now obtained of the experiences which had taken place during the previous moments in hypnosis, the subject being unaware of what the hand wrote. Here were complete memories of the whole period of which the personal consciousness, B, had no knowledge. One of the most striking, not to say dramatic, demonstrations of this kind can sometimes be obtained in cases exhibiting several different hypnotic states. For instance: "c" and "b" are two different hypnotic phases belonging to the same individual (B. C. A.). c knows nothing of the experiences of b, and b nothing of c, each having amnesia for the other. Now one has only to whisper in the ear of c, asking a question of b, and at once, by automatic speech, the dormant b phase responds, giving such information as is sought in proof of the conservation of any given experience belonging to the tapped b phase. The consciousness of c apparently continues uninterruptedly during the experiment. The same evidence could be obtained by automatic writing under the same conditions. Again in the b phase another state known as "Alpha and Omega" can be tapped, giving similar evidence of conservation. In the case of Miss B. the same phenomena could be elicited. In this respect hypnotic states may show the same behavior as alternating personalities of which I shall presently speak.

Suggested *post-hypnotic phenomena* depend, in part, on the conservation of dormant complexes. In hypnosis I give a suggestion that the subject on

waking shall, at a given moment, take a cigarette and smoke it. There is thus formed a complex of ideas which becomes dormant and forgotten after waking. Later, by some mechanism which we need not inquire into now, the ideas of the dormant complex enter the field of the personal self; the idea of smoking a cigarette arises therein and the subject puts the idea into execution. These consequences of the suggestion could not occur unless the experiences were conserved. Or, we may take an experiment where the hypnotic experiences are reproduced automatically by writing. Here the conserved experiences form a secondary system split off from the personal consciousness. This system reproduces the hypnotic experiences as memory outside of the personal consciousness.

From a practical point of view this principle of the conservation of the experiences of the hypnotic state is of the utmost importance. The fact that a person does not remember them on waking—if such be the case—is of little consequence in principle, and, practically, this amnesia does not preclude these experiences from influencing the waking personality. *As experiences and potential memories they all belong to and are part of the personality.* The hypnotic experiences being conserved our personality may still be modified and determined in its judgments, points of view, and attitudes by them, as by other unrecognized memories when such modifications have been effected in the hypnotic state.

When the last is the case the hypnotically modified judgments, etc., may introduce themselves into the content of consciousness in the waking state by association without being recognized as memories. There may be no recollection of the source of the new ideas, of the reason for the modification of a given judgment or attitude of mind, because there is no recollection of the hypnotic state as a whole; but so far as the new judgment or attitude is a reproduction of an hypnotic experience it is memory, although not perfect memory or recollection in the sense of localizing the experience in the past.

This principle can easily be demonstrated experimentally. It is only necessary, for instance, to state to a suitably suggestible subject that the weather, with which previously he was discontented is, after all, fine; for although it is raining, still, the crops need rain; it will allay the dust and make motoring pleasant, it will give him an opportunity to finish his neglected correspondence, etc. The whole prospect, he is told, is pleasing. He accepts, we assume, the new point of view. He is then waked up and has complete amnesia for the experience. Now these ideas, developed in the hypnotic state, are conserved as potential memories. Though with the change of the moment-consciousness they cannot be voluntarily recalled, they have entered into associations to form a new viewpoint. Just speak to him about the weather and watch the result. His discontent has disappeared and given place to satisfaction. He expresses himself as quite pleased with

the weather and gives the same reasons for his satisfaction as were suggested to and accepted by him in hypnosis. He does not recognize his new views as reproductions, i. e., memories, of previous experiences because he has no recollection of the hypnotic state. He does not remember when and how he changed his mind; but these experiences have determined his views because they have become a part of his conscious system of thought. The principle applies to a large part of our judgments not formed in hypnosis. There is nothing very remarkable about it. The process is similar to that of ordinary thought though it has had an artificial and different origin. The complex of ideas having been formed in hypnosis still remains organized and some of its elements enter the complexes of the personal consciousness, just as in normal life ideas of buried experiences of which we have no recollection intrude themselves from time to time and shape our judgments and the current of our thoughts without our realizing what has determined our mental processes. We have forgotten the source of our judgments, but this forgetfulness does not affect the mechanism of the process.

Pathological states.—In the *functional amnesias* of a pathological character we find the same phenomenon of conservation. Various types of amnesia are encountered. I will specify only the episodic, epochal, and the continuous, so commonly observed in hysteria. This field has been threshed over by

many observers and I need refer only to a few instances as illustrations. In the first two types the experiences which are forgotten may have occurred during the previous normal condition. In the episodic the particular episode which is forgotten may have been, strangely enough, one which from the very important part it played in the life of the subject and its peculiar impressiveness and significance we should expect would be necessarily remembered, especially as memory in other respects is normal. But for the same reasons it is not surprising to find that the experience has been conserved somehow and somewhere although it cannot be recalled. The classical cases of Fräulein O. and Lucy R. reported by Breuer and Freud * are typical.

From my own collection of cases I will cite the following episode from the case of B. C. A. This subject received a mental shock as the result of an emotional conflict of a distressing character. This experience was the exciting factor in the development of her psychosis, a dissociation of personality. In the resulting "neurasthenic" state, although her memory was normal for all other experiences of her life, this particular episode with all its manifold details, notwithstanding its great significance in her life, completely dropped out of her memory.†

This incident was a very intimate one and it is not necessary to give the details. When put to the

* Studien über Hysterie.

† Of course I am not discussing here the genetic mechanism of the amnesia, being concerned only with the principle of conservation.

test all effort to recall the episode voluntarily is without result, and even suggestions in two hypnotic states fail to awaken it in those states. Yet when a pencil is put in her hand these memories are made to manifest themselves by automatic writing. During the writing the subject remains in a perfectly alert state but is unaware of what her hand is doing. At a later period after the subject had been restored to the normal condition she could voluntarily recall these memories thus, again, showing their conservation.

One other example of episodic amnesia I will cite, inasmuch as, aside from the question of conservation, it is of practical importance, being typical of experiences which lead to obsessions of phobia. The subject, O. N., had an intense fear of towers such as might contain bells that might ring. She had no recollection of the first occasion when the fear occurred or of any experience which might have given rise to it, and, of course, could give no explanation of the obsession. Neither in abstraction or hypnosis could any related memories be evoked, but by automatic writing she "unconsciously" described an emotional and dramatic scene which was the occasion of the first occurrence of the fear and which had taken place some twenty-five years previously when she was a young girl.

With the reason for the amnesia we are not particularly concerned at present excepting so far as it serves to make clear the distinction between recollection and conservation, and to throw light on the nature of the latter. The episodes in both these in-

stances were of a strongly emotional character. Now we have known for many years from numerous observations that emotion tends to disrupt the mind and to dissociate the experiences which give rise to the affective state so that they cannot be brought back into consciousness. We may particularize further and, making use of the known impulsive force of emotion, attribute the dissociation (or inhibition) in many cases to a conflict between certain ideas belonging to the experience and other opposing ideas which, with the emotion, they have awakened. The impulsive force of the latter ideas, being the stronger, dissociates, or, to use the expressive term introduced by Freud, represses, the former. The principle of dissociation by conflict has been formulated and elaborated by Freud in his well-known theory which has been made use of to explain all functional amnesias. It is not necessary to go as far as that, nor does the theory as such concern us now. It is sufficient if in certain cases the amnesia (or dissociation) is a dissociation (repression) induced by the conative force of conflicting emotion. If so we should expect that the amnesia would be of a temporary nature and would continue only so long as the conflict and dissociating force continued. In any favorable moment when repression ceased or failed to be operative, as in hypnosis or abstraction, reproduction (recollection) could occur. But this requires that the registration of the experience should be something specific that can be dissociated without obliteration. And, further, it must be some-

thing that can be so conserved, somehow and somewhere, *during dissociation* that, as in the case of reproduction by automatic writing, it can escape the influence of the repressing force and express itself autonomously, i. e., without the expressed memory of the experience entering the personal consciousness. To this we shall return later.

In the two examples I have cited, if my interpretation is correct, the amnesia was due to dissociation by conflict and hence the conservation, as is the rule in functional dissociation, and the reproduction by automatic writing. This principle of dissociation by conflict and of conservation of the dissociated remembrances is of great practical importance as we shall see in later lectures. It can be best studied experimentally with cases of multiple personality. In the case of Miss B. numerous examples of amnesia from conflict were observed. Owing to the precise organization of the consciousness into two distinct personalities it was possible to definitely determine beyond question the antagonistic ideas of one personality which voluntarily induced the conflict and, by the impulsive force of their emotion, caused the amnesia in the other personality.* The same phenomena were observed in the case of B. C. A. As memory for the forgotten experiences in these instances returned as soon as the conflict ceased, conservation of them necessarily persisted during the amnesia.

* The Dissociation, pp. 284-5, 456-9.

Perhaps I may be permitted to digress here slightly to point out that this same (in principle) phenomenon may be effected experimentally by suggestion. The suggested idea which has the force of a volition or unexpressed wish, coming in conflict with the knowledge of previously familiar facts, inhibits or represses the reproduction in consciousness of this knowledge as memory. It is easy to prove, however, that this knowledge is conserved though it cannot be recalled. Thus, I give appropriate suggestions to B. C. A. in hypnosis that she shall be unable, when awake, to remember a certain unpleasant episode connected with a person named "August." After being awakened she has complete amnesia, not only for the episode, but even for the name. The suppression of the memory of the episode carries with it by association the name of the person. In fact, the name itself has no meaning for her. When asked to give the names of the calendar months after mentioning "July" she hesitates, then gives "September" as the next. Even when the name "August" is mentioned to her it has no meaning and sounds like a word of a foreign language. The memory of the episode has become dormant so far as volitional recollection is concerned. It can, however, be *recalled as a coconscious process* through automatic writing, as in the preceding experiment, and then the word in all its meanings and associations is also awakened in the coconsciousness.

The same phenomenon may be observed clinically in transition types standing halfway between

the amnesia following emotional episodes and that produced by external suggestion. Auto-suggestion may then be a factor in the mechanism, as in the following example: In a moment of discouragement and despair B. C. A., torn by an unsolved problem, said to herself after going to bed at night, "I shall go to sleep and I shall forget everything, my name and everything else." Of course she did not intend or expect to forget literally her name, but she gave expression to a petulant despairing conditional wish which if fulfilled would be a solution to her problem; as much as if she said, "If I should forget who I am my troubles would be ended." Nevertheless the auto-suggestion with its strong feeling tones worked for repression. The next day, when about to give her name by telephone, she discovered that she had forgotten it. On testing her later I found that she could not speak, write, or read her name. She could not even understandingly read the same word when used with a different signification, i. e., stone [her name, we will suppose, is Stone], nor the letters of the same. This amnesia persisted for three days until removed by my suggestion. That the lost knowledge was all the time conserved is further shown by the fact that during the amnesia the name was remembered in hypnosis and also reproduced by automatic writing.

In the epochal type of amnesia a person, perhaps after a shock, suddenly loses all memory for lost *epochs,* it may be for days and even for years of

his preceding life. In the classical case of Mr. Hanna, studied by Boris Sidis, the amnesia was for his whole previous life, so that the subject was like a new-born child. It is easy to show, however, that the forgotten epoch is normally conserved by making use of the various methods of reproduction at our disposal. In the case of Hanna, Sidis was able through "hypnoidization" and suggestion to bring back memory pictures of the amnesic periods. "While the subject's attention is thus distracted, events, names of persons, of places, sentences, phrases, whole paragraphs of books totally lapsed from memory, and in language the very words of which sounded bizarre to his ears and the meaning of which was to him inscrutable—all that flashed lightning-like on the patient's mind. So successful was this method that on one occasion the patient was frightened by the flood of memories that rose suddenly from the obscure subconscious [unconscious] regions, deluged his mind, and were expressed aloud, only to be forgotten the next moment. To the patient himself it appeared as if another being took possession of his tongue."*

In another class of cases of epochal amnesia known as *fugues* the subject, having forgotten his past life and controlled by fancied ideas, perhaps wanders away not knowing who he is or anything of the previous associations of his life. The "Lowell Case" of amnesia, which I had an opportunity to

* Boris Sidis: The Psychology of Suggestion, p. 224; see also Multiple Personality, p. 143.

carefully observe and which later was more extensively studied for me by Dr. Coriat, may be instanced.* A woman suddenly left her home without apparent rhyme or reason. When later found she had lost all recollection of her name, her personality, her family, and her surroundings, and her identity was only accidentally discovered through the publication of her photograph in the newspaper. She then had almost complete amnesia for her previous life.

Another case, also studied by Dr. Coriat and the writer, was that of a policeman who suddenly deserted his official duty in Boston and went to New York, where he wandered about without knowledge of who he was, his name, his age, his occupation, indeed, as there is reason to believe, of his past life. When he came to himself three days later he found himself in a hospital with complete amnesia for the three days' fugue. When I examined him some days later this amnesia still persisted but Dr. Coriat was able to recover memories of his vagrancy in New York showing that the experiences of this fugue were still conserved. It is hardly necessary to remind you that, of course, the memories of his normal life which during the fugue it might have been thought were lost were shown to have been conserved, as on "coming to himself" they were recovered. In the "Lowell Case" substantially similar conditions were found.

In *continuous or anterograde* amnesia the subject forgets every experience nearly as fast as it hap-

* *The Journal of Abnormal Psychology*, Vol. II, p. 93.

pens. The classical case of Mme. D., studied by Charcot and later more completely by Janet, is an example. The conservation of the forgotten experiences was demonstrated by these authors.

In *multiple personality* amnesia for large epochs in the subject's life is quite generally a prominent feature. In one phase of personality there is no knowledge whatsoever of existence in another phase. Thus, for instance, all the experiences of BI and BIV, in the case of Miss B., were respectively unknown to the other. When, however, the change took place from one personality to the other, with accompanying amnesia, all the great mass of experiences of the one personality still remained organized and conserved during the cycle of the other's existence. With the reversion to the first personality, whichever it might be, the previously formed experiences of that personality became capable of manifesting themselves as conscious memories. This conservation could also be shown, in this case, by the method of tapping the conserved memories and producing crystal visions or artificial hallucinations. Those who are familiar with the published account of the case will remember that BIV was in the habit at one time of acquiring knowledge of the amnesic periods of BI's existence by "fixing" her mind and obtaining a visual picture of the latter's acts. Likewise, it will be remembered that by crystal visions I was enabled to bring into consciousness a vision of the scene at the hospital

which, through its emotional influence, caused the catastrophe of dissociation of personality, and also of the scene enacted by BI just preceding the awakening of BIV, of all of which BIV had no knowledge.* As with Mr. Hanna sometimes these memories instead of being complex pictures were scrappy —mere flashes in the pan. The same condition of conservation of the experiences of one personality during the existence of another obtained in the case of B. C. A. and numerous cases recorded in the literature. In this respect the condition is the same as that which obtains in hypnotic states and which I mentioned a few moments ago.

We may, in fact, lay it down as a general law that during any dissociated state, no matter how extensive or how intense the amnesia, all the experiences that can be recalled in any other state, whether the normal one or another dissociated state, are conserved and, theoretically at least, can be made to manifest themselves. And, likewise and to the same extent, during the normal state the experiences which belong to a dissociated state are still conserved, notwithstanding the existing amnesia for those experiences. Furthermore, if we were dealing with special pathology we would be able to show that many pathological phenomena are due to the subconscious manifestations of such conserved and forgotten experiences.

Observation shows that the experiences of *trance states* and allied conditions are similarly conserved.

* The Dissociation, pp. 220, 221, 255, 531, 532.

Fanny S., as the result of an emotional shock, due to a distressing piece of news, goes into a trance-like state of which she has no memory afterwards. Later, a recollection of this supposedly unconscious state, including the content of her trance thoughts and the sayings and doings of those about her, is recovered by a special device. B. C. A. likewise fell into a trance of which there was no recollection. The whole incident was equally fully recovered in a crystal vision, and also conscious memory of it brought back to personal consciousness by a special technic. In the vision she saw herself apparently unconscious, the various people about her each performing his part in the episode; the doctor administering a hypodermic dose of medicine, etc. In hypnosis she remembered in addition the thoughts of the trance consciousness and the various remarks made by different people in attendance.

Even *delirious states* for which there is complete amnesia may be conserved. I have observed numerous instances of this in the case of Miss B. For instance, the delirious acts occurring in the course of pneumonia were reproduced in a crystal vision by Miss B. and the delirious thoughts as well were remembered by the secondary personality, Sally.* I have records of several examples of conservation of delirium in this case. Quite interesting was the repetition of the same delirium due to ether narcosis in succeeding states of narcosis as frequently happened. A very curious phenomenon of the same or-

* The Dissociation, p. 83.

der was the following: After the subject had been etherized a number of times I adopted the ruse of pretending to etherize one of the secondary personalities, using the customary inhaler but without ether. The efficient factor was, of course, suggestion. The subject would, at least apparently, become unconscious, passing into a state which had all the superficial appearances of deep etherization. At the end of the procedure she would slowly return to consciousness, repeat the same stereotyped expletives and other expressions which she regularly made use of when ether was actually used, and make the same grimaces and signs of discomfort, etc. This behavior would seem to indicate that the mental and physical experiences originally induced by a physical agent were conserved and later reproduced under imaginary conditions.

Mental experiences formed in states of *alcoholic intoxication* without delirium may be conserved as dormant complexes. Dr. Isador Coriat,* in his studies of *alcoholic amnesia,* was able to restore memories of experiences occurring during the alcoholic state showing that they were still conserved. The person, during the period for which later there is amnesia, may or may not be what is ordinarily called drunk, although under the influence of alcohol. Later, when he comes to himself, he is found to have forgotten the whole alcoholic period—perhaps several days or a week—during which he may have acted with apparently ordinary intelligence, and

* *The Journal of Abnormal Psychology,* Vol. I, No. 3.

perhaps have committed criminal acts. By one or another of several technical methods memory of the forgotten period may often be recalled. Dr. C. W. Pilgrim * also has reported two cases of this kind in which he succeeded in restoring the memories of the forgotten alcoholic state. I might also recall here the case, cited by Ribot, of the Irish porter who, having lost a package while drunk, got drunk again and remembered where he had left it.

Of course, in order to demonstrate the conservation of forgotten experiences it is necessary, when abstraction is not sufficient, to employ subjects in whom more profound dissociation of consciousness can be produced by one or another of the artificial means described so as to permit of the reproduction of the hidden (conserved) experiences of mental life. Such subjects, however, are sufficiently common. Often the passive state of abstraction after some practice is sufficient.

Summary

Although in the above résumé of the phenomena of memory I have for the most part made use of personal observations, these, so far as the phenomena themselves are concerned, are in accord with those of other observers. It would have been easy to have drawn for corroboration upon the writings of Gurney, Janet, Charcot, Breuer, Freud, Sidis, Coriat, and others.

* *American Journal of Insanity*, July, 1910.

A survey of all the facts which I have outlined in this lecture forces us to ask ourselves the question: To what extent are life's experiences conserved? Indeed it was to meet this question that I have reviewed so large a variety of forgotten experiences which experiment or observation in individual cases has shown to be conserved. If my aim had been to show simply that an experience, which has been lost beyond all possible voluntary recall, may still be within the power of reproduction when special devices adapted to the purpose are employed, it would not have been necessary to cover such a wide field of inquiry. To meet the wider question it was necessary to go farther afield and examine a large variety of experiences occurring in multiform conditions of mental life.

After doing this the important principle is forced upon us in strong relief that it matters not in what period of life, or in what state, experiences have occurred, or how long a time has intervened since their occurrence; they may still be conserved. They become dormant, but under favorable conditions they may be awakened and may enter conscious life. We have seen, even by the few examples I have given, that childhood experiences that are supposed to have long been buried in oblivion may be conserved. We have seen that the mental life of artificial and pathological states is subject to the same principle; that the experiences of hypnosis, trance states, deliria, intoxication, dissociated personality —though there may be absolute amnesia in the nor-

mal waking state for them—may still be capable of reproduction as memory. Yet of the vast number of mental experiences which we have during the course of our lives we can voluntarily recall but a fractional part. What proportion of the others is conserved is difficult, if not impossible, to determine. The difficulty is largely a practical one due to the inadequacy of our technical methods of investigation. In the first place, our technic is only applicable to a limited number of persons. In the second place, it is obvious that when an episode—occurring in the course of everyday life—is forgotten, but is recovered under one or another of the conditions I have described, it is only in a minority of instances that circumstances will permit confirmation of this evidence by collateral and independent testimony. Still, if we take the evidence as a whole its cumulative force is such as to compel the conviction that a vast number of experiences, more than we can possibly voluntarily recall, are conserved, and that it is impossible to affirm that any given experience may not persist in a dormant state. It is impossible to say what experiences of our daily life have failed to be conserved and what are awaiting only a favorable condition of reproduction to be stimulated into activity as memory. Even if they cannot be reproduced by voluntary effort, or by some one particular device, they may be by another and, if all devices fail, they may be recovered in pathological conditions like delirium, trance, spontaneous hallucinations, etc., or in normal dissociated states like

dreams. The inability to recall an experience is no evidence whatever that it is not conserved. Indeed, even when the special methods and moments fail it is still not always possible to say that it is not conserved.

It would be a gross exaggeration to say, on the basis of the evidence at our disposal, that all life's experiences persist as potential memories, or even that this is true of the greater number. It is, however, undoubtedly true that of the great mass of experiences which have passed out of all voluntary recollection, an almost incredible, even if relatively small, number still lie dormant, and, under favoring conditions, many can be brought within the field of conscious memory. The significance of this fact will become apparent to us later after we have studied the nature of conservation. Still more significant, particularly for abnormal psychology, is the fact we have brought out by our technical methods of investigation; namely, that almost any conserved experience under certain conditions can function as a subconscious memory and become translated into, i.e., produce sensory and motor automatic phenomena, such as hallucinations, writing, speech, etc. It will not be surprising if we shall find that various other disturbances of mind and body are produced by such subconscious processes.

Two striking facts brought out by some of these investigations are the minuteness of the details with which forgotten experiences may be conserved and the long periods of time during which conserva-

tion may persist. Thus, as we have seen, experiences dating back to early childhood may be shown to be preserved in extremely minute detail though the individual has long forgotten them. Furthermore, it has been shown that even remembered experiences may be conserved in far more elaborate detail than would appear from so much of the experience as can be voluntarily recalled. Probably our voluntary memory is not absolutely perfect for any experience in all its details but the details that are conserved often far exceed those that can be recalled.

In the survey of life's experiences which we have studied we have, for the most part, considered those which have had objective relation and have been subject to confirmation by collateral testimony. But we should not overlook the fact that among mental experiences are those of the inner as well as outer life. To the former belong the hopes and aspirations, the regrets, the fears, the doubts, the self-communings and wrestlings with self, the wishes, the loves, the hates, all that we are not willing to give out to the world, and all that we would forget and would strive not to admit to ourselves. All this inner life belongs to our experience and is subject to the same law of conservation.

Finally, it should be said that much of what is not ordinarily regarded as memory is made up of conserved experiences. A large part of every mental content is memory the source of which is forgotten. Just as our vocabulary is memory, though

we do not remember how and where it was acquired, so our judgments, beliefs, and opinions are in large part made up of past experiences which are forgotten but which have left their traces as integral parts of concepts ingrained in our personalities.

LECTURE IV

CONSERVATION A RESIDUUM OF EXPERIENCES

A consideration of all the facts of observation and experiment of the kind which I have recited in the last two lectures—and I might have multiplied them many times—forces us to the conclusion that whether or not we can recall any given experience it may be still conserved. Bear in mind that I have used conservation, thus far, only in the sense that under favoring changes in the moment's consciousness, or by special methods of stimulation, a past experience may reproduce itself, or may be made to reproduce itself, in one form or another of memory.

It may be, for example, that you have to-day only a vague and general recollection of the last lecture and if you should endeavor to write an account of it from memory the result would be but a fragmentary report. And yet it is quite possible that, if one or another of the various technical methods I have described could be applied to some one of you, we should be able to recover quite exact memories, of certain portions at least, of the lecture—perhaps *verbatim* transcripts of certain portions, and large

numbers of facts which are quite beyond your present recollection.

Our study of those phenomena of memory which I cited in the last lecture was carried only so far as to allow us to draw the conclusions as to conservation which I have just stated. And, in drawing these conclusions, let me repeat—we have provisionally limited the meaning of the term conservation simply to the potential ability to reproduce experiences, with or without recollection, either in their original form, or translated into a graphic, visual, or auditory expression of them. We have not attempted from these phenomena to draw conclusions as to the nature of conservation, or as to whether it is anything apart from reproduction under favorable conditions. If we do not look below the surface of the phenomena it might be held that memory is only a recurrent phase of consciousness, and that the term conservation is only a figure of speech to express the ability to determine that recurrence in our self-consciousness.

Let us examine now a little more closely some of the phenomena we have already examined but inadequately.

Residual processes underlying automatic motor phenomena: writing, speech, gestures, etc.—We will take writing as a type and the following as an example: In a state of hypnosis a subject learns a verse by heart. It is then suggested that this verse shall be written automatically after he has been awak-

ened. (By arranging the conditions of the experiment in this way we make certain that the script afterwards written shall express a memory and not a fabrication.) After the subject returns to the normal waking state he has complete amnesia for the whole hypnotic state and therefore for the verse. Now, if the experiment is successful, his hand writes the given verse without the subject being aware of what his hand is writing, and it may be without being aware that his hand is writing anything at all. The whole thing has been done without participation of his consciousness and without his knowing that any such phenomenon was to occur. (Of course any of his conscious experiences while in the hypnotic state might have been used as a test, these being known to the experimenter as well.) Now the things to be noted are:

1, that the script expresses a memory; that is, reproduces previous *conserved* conscious ideas—the verse. It expresses memory just exactly as it would express it if it had been consciously and voluntarily written.

2, that these ideas *while in a state of conservation* and without entering consciousness—i. e., becoming conscious memory—express themselves in written language.

3, that this occurs while the subject has complete amnesia for the conserved ideas and therefore he could not possibly reproduce them as conscious memory.

4, that that which effects the writing is not a

recurring phase of the self-consciousness which is concerned at the moment with totally different ideas.

5, that the "state of conservation" is, at least during the writing, a specific state existing and functioning independently and outside of the personal self-consciousness.

6, that in functioning it induces specific processes which make use of the same organized physiological mechanisms which ordinarily are made use of by conscious memory to express itself in writing and that these processes are not in, but independent of, consciousness.

We are forced to conclude therefore that a conscious experience—in this case the ideas of the verse —is conserved through the medium of some kind of residuum of itself capable of specific functioning and inducing processes which reproduce in the form of written symbols the ideas of the original experience.

We need not consider for the present the nature of the residuum, and its process, whether it is the ideas themselves or something else.

Residual processes underlying hallucinations.—We will take the observation of B. C. A. looking into a crystal and reading some printed words—a cablegram—which she had previously unconsciously overheard.* The words were, let us say, "Best Wishes and a Happy New Year." This visual picture was not a literal reproduction of the original

* Lecture III, p. 58.

experience, which was a subconscious *auditory* experience of the same words, of which she was not aware; but plainly, nevertheless, the visual picture must have been determined somehow by the auditory experience. Equally plainly the visual image was not a recurrent phase of the consciousness, for the words of the message had not been previously *seen*. What occurred was this: the antecedent auditory perception manifested itself in consciousness *after an interval of time* as a visual hallucination of the words. There was a reproduction of the original experience but not in its original form. It had undergone a *secondary alteration* by which the visual perception replaced the auditory perception. As a memory it was a conversion or *translation* of an auditory experience into terms of another sense. Now the conversion must have been effected by some mechanism outside of consciousness; that is to say, it was not an ordinary visualization, i. e., intensely vivid secondary images pertaining to a *conscious* memory, as when one thinks of the morning's breakfast table and visualizes it; for there was no conscious memory of the words, or knowledge that there ever had been such an experience. The visualization therefore must have been induced by something not in the content of consciousness,—something we have called a secondary process, of which the individual is unaware.

We can conceive of the phenomenon originating in either one of two possible modes. Either the hallucination was a newly fabricated conscious ex-

perience; or it was a reproduction of secondary visual images originally belonging to the auditory perception at the time of its occurrence and now thrust into consciousness in an intensely vivid form. In either case, for this to have taken place something must have been left by the original experience and conserved apart from and independent of the content of the personal consciousness at any and all moments—something capable of functioning after an interval of time as a secondary process *outside of the personal consciousness.* The only intelligible explanation of the phenomenon is that the original auditory impression persisted, somehow and somewhere, in a form capable of conservation as a specific and independent residuum during all subsequent changes in the content of consciousness. This residuum either fabricated the hallucination or thrust its secondary images into consciousness to become the hallucination.

The phenomenon by itself does not permit a conclusion as to the nature of the residuum, whether it is psychological or neural; i. e., whether an auditory perception, as perception, still persists subconsciously outside the focus of awareness of consciousness, or whether it has left an alteration of some kind in the neurons. Whatever the inner nature of the conserved experience it *obviously must have a very specific and independent existence, somehow and somewhere, outside of the awareness of consciousness, and one capable of secondary functioning in a way that can reproduce the orig-*

inal experience in terms of another sense. In other words, conservation must be in the form of some kind of residuum, psychological or neural. It must be, therefore, something very different from reproduction or a recurrent phase of consciousness. Further, it must form a stage in the process of memory of which reproduction is the final result.

This observation of course does not stand alone. I have cited a number of observations and might cite many more in which the same phenomenon of transformation or conversion of sensory images of one sense into images of another sense was prominent. Indeed a study of hallucinations, artificial or spontaneous, which are representations of former experiences and where the determining factors can be ascertained, will show that in most, if not all, of them this same *mechanism of conversion* is at work. Take, for instance, the experiment cited in our last lecture, the one in which Miss B. was directed to look into a crystal for the purpose of discovering the whereabouts of some money she had lost without being aware of the fact. In the crystal she sees a vision of herself walking along a particular street in Boston absorbed in thought. She sees herself in a moment of absent-mindedness take some bank-notes out of her pocket, tear them up, and throw them into the street.

Now this artificial hallucination was, as we have seen, a picture of an actual occurrence for which there was amnesia. It must, therefore, have been

determined by that experience. The psychological phenomena manifested, however, were really much more complicated than would appear at first sight. An analysis of this vision, which unfolded itself like a cinematograph picture, would show that it was a composite visual representation of several different kinds of experiences—of past perceptions of her body and face, of her conscious knowledge of her relation to the environment (in the street), of muscular movements, and of her knowledge derived from subconscious tactile impressions of the act. Of these last she was not aware at the time of their occurrence. Much of this knowledge must have persisted as a residuum of the original experience and functioned subconsciously. Thereby, perhaps, the original secondary visual images were reproduced and emerged into consciousness as the hallucination or pictorial memory.

Similar phenomena indicative of conservation being effected by means of a residuum of the original experience may be produced experimentally in various ways. For instance, in certain hysterics with anesthesia if you prick a number of times a part of the body—say the hand—in which all tactile sensation has been lost, and later direct the subject to look into a crystal, he will see a number, perhaps written on a hand. This number, let us say five, will correctly designate the number of times the hand was pricked. Now, because of the loss of sensibility, the subject was unaware of the pin-pricks. Nevertheless, of course, they were recorded subcon-

sciously, coconsciously). Their subsequent transformation into a visual hallucination not only shows that they were conserved, but that they left something which was capable of taking part, outside of consciousness, in a secondary process which gave rise to the hallucination.

An examination of all crystal visions, so far as they are translated memories of actual experiences, will show this same evidence for a conserved residuum.

That *conservation is not merely a figure of speech* to express the ability to determine the recurrence of a previous experience, but means a specific residuum capable of independent and elaborate functioning, is brought out more conspicuously in those visions which are elaborately fabricated symbolisms of an antecedent experience. In other words, the vision is not a literal recurrence of a previous phase of consciousness, in that the latter has been worked over, so to speak, so as to appear in consciousness in a reconstructed form. Though reconstructed it either still retains its original meaning or is worked out to a completion of its thoughts, or to a fulfilment of the emotional strivings pertaining to them (anxieties, wishes, etc.). These visions, perhaps, more frequently occur spontaneously, often at moments of crises in a person's life, but also are observed under experimental conditions. Sometimes they answer the doubts, scruples and other problems which have troubled the subject, sometimes they express the imaginary fulfilment of

intense longings or of anxieties and dreads which have been entertained, or disturbing thoughts which have pricked the conscience.* We are obliged to conclude, in the light of experimental observations of the same class, that such phenomena are determined by the specific residua of antecedent thoughts which must be conserved and function in a specific manner to appear in this metamorphosed form.

Similar residual processes underlying post-hypnotic phenomena.—Conserved experiences which give rise to more complicated secondary elaboration may be observed in suggested post-hypnotic phenomena. Experiments of this kind may be varied in many ways. The phenomenon may be an hallucination similar to the one I have just described in hysterics, or a so-called subconscious calculation. You suggest in hypnosis to a suitable subject that he shall multiply certain numbers, or calculate the number of seconds intervening between certain hours—let us say between 10:43 and 5:13 o'clock—the answer to be given in writing on a certain day. The subject is then awakened immediately, before he has time to do the calculation while in hypnosis. Later, if the experiment is successful, at the time designated the subject will absent-mindedly or automatically write the figures giving the answer.

There are two modes in which these calculations may be accomplished. In a special and limited class of cases, where there is a large split-off subconscious

* For specific instances, see Lecture VII.

personality, or doubling of consciousness, the calculation may be made entirely by this secondary subconscious self, in the same fashion as it would be made by the principal personality if the problem were given in the waking state. The subconscious personality will go through each conscious step in the calculation in the same way.* In a second class of cases the *calculations are worked out, apparently, unconsciously,* without participation in the process by a subconscious personality even when such exists. At most it would seem that isolated numbers representing different steps in the calculation arise from time to time coconsciously as a limited secondary consciousness (of which the personal consciousness is unaware) until finally the figures of the completed answer appear therein. The calculation itself appears to be still another process outside both the personal and the secondary consciousness. When the problem has been finished the answer is finally given automatically. The whole process is too complicated to go into at this time before we have studied the problems of the coconscious.† It is enough to say that it plain that the hypnotic experience—the suggested problem—must be considered as some kind of specific residuum, psychological or neural, and that this residuum must be one capable of quite elaborate independent and subconscious intellectual activity before finally becoming transformed into the final answer.

* Morton Prince: Experimental Evidence for Coconscious Ideation, *Journal of Abnormal Psychology,* April-May, 1908.

† For further details, see Lecture VI, p. 169.

Residual processes underlying dreams.—When citing the evidence of dreams for the conservation of forgotten experiences I spoke of one type of dream as a symbolical memory. I may now add it is more than this; it is a fabrication. The original experience or thought may appear in the dream after being worked over into a fantasy, allegory, symbolism, or other product of imagination. Such a dream is not a recurrent phase of consciousness, but a *newly fabricated phase.* Further, analytical and experimental researches go to show that the fabrication is performed by the original phase without the latter recurring in the content of the personal consciousness. The original phase must therefore have been conserved in some form capable of such independent and specific functioning, i. e., fabrication below the threshold of consciousness. For instance:

The subject dreamed that she was standing where two roads separated. One was broad and bright and beautiful, and many people she knew were going that way. The other road was the rocky path, quite dark, and no one was going that way, but she had to go. And she said, "Oh, why must I go this way? Will no one go with me?" And a voice replied, "I will go with you." She looked around, and there were some tall black figures; they all had names across their foreheads in bright letters, and the one who spoke was Disappointment; and all the others said, "We will go with you," and they were Sorrow, Loss, Pain, Fear, and Loneliness, and she fell down on her face in anguish.

Now an analysis of the antecedent thought of this subject and a knowledge of her circumstances and mental life, though we cannot go into them here, make it perfectly clear that as a fact, whether there

was any causal connection or not, this dream *was* a symbolic expression of those thoughts. The rocky path has been shown to be symbolic of her conception of her own life entertained through years—the other road symbolic of the life longed for and imagined as granted to others. Likewise the rest of the dream symbolized, in a way which any one can easily recognize, the lot which she had in her disappointment actually fancied was hers. The thoughts thus symbolized had been constantly recurring thoughts and therefore had been conserved. They were reproduced in the dream, not in their original form, but translated into symbols and an allegory. Something must, therefore, have effected the translation. In other words, the dream is not a recurrent phase of consciousness but *an allegorical fabrication* which expresses these thoughts, not literally as they originally occurred, but in the form of an imaginative story. Now the similarity of the allegorical dream thoughts to the original thoughts can be explained only in two ways: either as pure chance coincidence, or through a relation of cause and effect. In the latter case the dream might have been determined either by the specific antecedent thoughts in question—those revealed as memories in the analysis, or both series might have been determined by a third, as yet unrevealed, series. For the purposes of the present problem it is immaterial which so long as the dream was determined by some antecedent thought. The very great frequency, not to say universality, with which this same similarity

or a logical relation with antecedent thoughts is found in dreams after analysis renders chance coincidence very improbable. We must believe, therefore, that the dream was determined by antecedent experiences. It is beyond my purpose to enter here into an exposition of the theory of the mechanism of dreams, although I shall touch upon it later in some detail in connection with subconscious processes. We need here only concern ourselves with this mechanism so far as it bears upon the principle of conservation. Suffice it to say that analytical observations (Freud) have, it seems to me, conclusively shown that conserved experiences may be not only the determining factors in dreams, but that *while in a state of conservation they are capable of undergoing elaborate fabrication and afterwards appearing so thoroughly transformed in consciousness as not to be superficially recognizable.* I have also been able to reach the same conclusions by the method of experimental production of dreams.

The only question is, in what form can a thought be so conserved that it can, *while still in a state of conservation,* without itself rising into consciousness, fabricate a symbolism, allegory, or other work requiring imagination and reasoning? The only logical and intelligible inference is that the antecedent conscious experience has been either itself specifically conserved as such outside of the personal consciousness, or has left some neural residuum or disposition capable of functioning and constructing the conscious dream fabrication.

Residual processes underlying physiological bodily disturbances.—Before proceeding further I would invite your attention to another class of facts as these facts must be taken into consideration in any theory of conservation. These facts show that the residua can, by subconscious functioning, induce *physiological bodily manifestations* without reproducing the original mental experience as conscious memory. In certain abnormal conditions of the nervous system, i. e., in certain psychoneuroses, we meet with certain involuntary actions of the limbs or muscles known as spasms and contractures; also with certain impairment of functions such as blindness, deafness, loss of sensation (anesthesia), paralysis, etc. These disturbances are purely functional, meaning that they are not due to any organic disease. Now the evidence seems to be conclusive that these physiological disturbances are caused sometimes by ideas after they have passed out of consciousness and become, as ideas, dormant, i. e., while they are in a state of conservation and have ceased to be ideas—or, at least, ideas of which the subject is aware. A moment's consideration will convince you that this means that ideas, or, at least, experiences in a state of conservation, and without being reproduced as conscious memory, can so function as to affect the body in one or other of the ways I have mentioned. To do this they must exist in some specific form that is independent of the personal consciousness of the moment. To take, for

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example, an actual case which I have elsewhere described:

B. C. A., in a dream, had a visual hallucination of a flash of light which revealed a scene in a cave and which was followed by blindness such as would physiologically follow a tremendous flash. In the dream she is warned that if she looks into the cave she will be blinded. She looks; there is a blinding flash and loss of vision follows; after waking she was still partially blind, but she continued from time to time to see momentary flashes of light revealing certain of the objects seen in the dream in the cave, and these flashes would be succeeded temporarily by absolute blindness as in the dream. She had no memory of the dream. Now psychological analysis disclosed the meaning of the dream; it was a symbolical representation of certain conserved (subconscious) previous thoughts—thoughts apprehensive of the future into which she dared not look, thinking she would be overwhelmed. *While in a state of conservation* the residua of *these* antecedent thoughts had translated themselves into the symbolical hallucination of the dream and the loss of vision. Similarly after waking, although she had no memory of the dream, the conserved residua of the same thoughts continued to translate themselves into visual hallucinations and to induce blindness.* It would take too long for me to enter here into the

* Prince: Mechanism and Interpretation of Dreams, *Jour. of Abn. Psych.*, October-November, 1910.

details of the analysis which forces this conclusion.*

Similarly, as is well known, convulsions resembling epilepsy, paralysis, spasms, tics, contractures, etc., may be caused directly or indirectly by ideas, after they have passed out of consciousness and ceased to take part in the conscious processes of thought. At least that is the interpretation which the facts elicited by the various methods of investigation seem to require.

There is an analogous class of phenomena which ought to be mentioned among the possible data bearing upon the theory of memory, although too much weight cannot be placed upon them as their interpretation is not wholly clear. I will discuss them in detail later in connection with the phenomena of the emotions. They are certain *emotional phenomena* which are attributed by some writers to ideas in a state of conservation. It has been demonstrated that ideas to which strong feeling tones are attached are accompanied by such physiological effects as disturbance of respiration, of the heart's action, of the vaso-motor system, of the secretions, etc., and also by certain *galvanic phenomena* which are due to the diminution of the electrical resist-

* If, lacking this knowledge of the data, any one chooses to insist that it was not the conserved residua of previous thoughts, but of the dream itself (the only alternative entertainable explanation) which induced, *after waking,* the hallucinatory phenomena and blindness, we still fall back upon the same principle, namely, that of the subconscious functioning of conserved residua of a conscious experience producing a physiological (and psychological) effect.

ance of the body, probably caused by increased secretion of sweat.*

Now the point is that such phenomena are sometimes experimentally obtained in connection with certain test words † spoken to the subject experimented upon, although he has no recollection of any incident in his life which could have given an emotional tone to the word and, therefore, can give no explanation of the physical reaction. By various technical methods, however, memories of a forgotten emotional experience in which the idea (represented by the word) plays a part and through which it derived its emotional tone are resurrected. I have been able to obtain such reactions from test words which investigation showed referred to the incidents of terrifying dreams which were *completely forgotten* in the waking state. When the test word was given, the subject might, for instance, exhibit a respiratory disturbance—a sudden gasp—without conscious knowledge of its significance, and the galvanometer, with which the subject was in circuit, would show a wide deflection. Recovery of the dream in hypnosis would explain the meaning of the emotional disturbance excited by the word. The

* According to recent researches of Sidis in conjunction with Kalmus, and later with Nelson (The Nature and Causation of the Galvanic Phenomenon, Psychological Review, March, 1910) similar galvanic phenomena under similar conditions may be caused by the *generation* of an electric current within the body.

† The test word (e. g., boat, stone, hat, etc.) of course represents an idea which may have various associations in the mind of the subject.

interpretation which has been put upon such phenomena is that the residua of the forgotten experience are "struck" by the test word. As the forgotten experience originally included the emotion and its physiological reaction, so the residua are linked by association to the emotional mechanism and when stimulated function as a subconscious process and excite the reaction. If this interpretation, strongly held by some, be correct, the phenomena are important for the support they give to the theory of conservation. They would indicate that conscious experiences must be conserved in a very specific subconscious form, one that is capable, without becoming conscious memory, of exciting the physiological apparatus of the emotions in a manner identical with that of conscious emotional ideas. They are open, however, to a simpler explanation, whether more probable or not: namely, that it is not the residua of the forgotten experience which unconsciously excite the physiological reaction, but the auditory symbol, the test word itself. The symbol having been once associated with the emotional reaction, it afterwards of itself, through a short circuit so to speak, suffices to induce the reaction, though the origin of the association has been forgotten and, therefore, the subject is in entire ignorance of the reason for the strong feeling manifestation. On the other hand, in some instances test words associated with emotional experiences which *originally* were entirely coconscious and *had never entered conscious awareness at all* give the

reactions in question.* As coconscious memories of such experiences can be demonstrated it would seem at first sight as if under such conditions the word-reactions must come from a true subconscious process—the subconscious memory. And yet even here it is difficult to eliminate absolutely the possibility of the second interpretation. There are, however, a large number of emotional phenomena occurring in pathological conditions which can only be intelligibly interpreted as being due to the residua of previously conscious experiences functioning as a subconscious process. These phenomena we shall have occasion to review in succeeding lectures. They are too complex to enter upon at this stage.

Aside, then, from these word-reactions we have a sufficient number of other phenomena, such as I have cited, which indicate that conscious experiences when conserved must persist in a form capable of exciting purely physiological reactions without the experiences themselves rising into consciousness again as memory. The form must also be one which permits of their functioning as intelligent processes although not within the conscious field of awareness of the moment.

As a final summing up of the experiments and observations of the kind which I have thus far cited,

* Morton Prince and Frederick Peterson: Experiments in Psycho-Galvanic Reactions from Coconscious (Subconscious) Ideas in a Case of Multiple Personality, *Journal of Abnormal Psychology*, April-May, 1908.

dealing with forgotten experiences, we may say that they lead us to the following conclusions:

1. That conservation is something very different from reproduction.

2. A given experience is conserved through the medium of some kind of residuum of that experience. This residuum must have a specific existence independent of consciousness, in that it is capable of specific and independent functioning, coincidentally with and outside of the consciousness of any given moment. Its nature must be such that it can incite through specific processes the following phenomena in none of which the conscious processes of the moment take part as factors:

(a) Specific memory for the given experience expressed through the established physiological mechanisms of external expression (speech, writing, gestures) after the manner of a mnesic process.

(b) A mnesic hallucination which is a representation of the antecedent perceptual experience but after having undergone translation into terms of another sense.

(c) A mnesic hallucination in which the original experience appears synthesized with various other experiences into an elaborate representation of a complex experience, or secondarily elaborated into a symbolism, allegory or other fabrication.

(d) Mnesic phenomena which are a logical continuation of the antecedent conscious experiences and such as ordinarily are produced by conscious processes of thought—reasoning, imagination, voli-

tion (mathematical calculations, versification, fabrication, etc.).

(e) Physical phenomena (paralyses contractures, vasomotor disturbances, etc.).

In other words a specific experience while in a state of conservation and without being reproduced in consciousness can incite or induce processes which incite these and similar phenomena.

LECTURE V

NEUROGRAMS

We have got as far as showing that the phenomena of memory to be intelligible require that ideas which have passed out of mind must be conserved through some sort of residuum left by the original experience. But this as a theory of memory is incomplete; the question remains, *How,* and in what form, manner, or way, are they conserved? In other words, What is the nature of the residuum? Is it psychical or physical? * As we have seen, from the fact that something outside of the personal consciousness can manifest memory of a given experience at the very same moment when the personal consciousness has amnesia for that experience, we are compelled to infer that conservation must be by a medium, psychological or physiological, capable of being excited as a specific secondary process. Now this medium must be either an undifferentiated "Psyche" or specific differentiated residua. In the former case we postulate a concept of a transcendental something beyond experience

* I use this term physical in the sense in which it is used in the physical sciences without reference to any metaphysical concept or the ultimate nature of matter or of a physical process.

and of which, like the soul after death, we have and can have no knowledge. To this concept of an undifferentiated Psyche we shall return presently.

If the second alternative—specific differentiated residua—be the medium by which experiences are conserved, then the residua must be either specific psychological states, i. e., the original psychological experience itself as such; or neural residua (or dispositions) such as when excited are ordinarily correlated with a conscious memory. In either case the medium would be such as to permit of the experiences manifesting themselves, while so conserved outside of the personal consciousness, as a very specific secondary process, not only reproducing the original experience as memory, but elaborating the same and exhibiting imagination, reasoning, volition, feeling, etc. Unless the doctrine of the undifferentiated Psyche be accepted it is difficult to conceive of any other mode in which conservation can be effected so as to permit of the phenomena of memory outside of consciousness.

Conservation considered as psychological residua.—It is hypothetically possible that our thoughts and other mental experiences after they have passed out of mind, out of our awareness of the moment, may continue their psychological existence as such although we are not aware of them. Such an hypothesis derives support from the fact that researches of recent years in abnormal psychology have given convincing evidence that an idea, under

certain conditions, after it has passed out of our awareness may still from time to time take on another sort of existence, *one in which it still remains an idea, although our personal consciousness of the moment is not aware of it.* A coconscious idea, it may be called. More than this, in absent-mindedness, in states of abstraction, in artificial conditions as typified in automatic writing, and particularly in pathological conditions (hysteria), it has been fairly demonstrated, as I think we are entitled to assert, that coconscious ideas in the form of sensations, perceptions, thoughts, even large systems of ideas, may function and pursue autonomous and contemporaneous activity outside of the various systems of ideas which make up the personal consciousness. It usually is not possible for the individual to bring such ideas within the focus of his awareness. Therefore, there necessarily results a doubling of consciousness,—two consciousnesses, one of which is the personal consciousness and the other a coconsciousness. These phenomena need to be studied by themselves. We shall consider them here only so far as they bear on the problem of conscious memory. Observation has shown that among ideas of this kind it often happens that many are memories, reproductions of ideas that once belonged to the personal consciousness. Hence, on first thought, it seems plausible that conservation might be effected by the content of any moment's consciousness becoming *coconscious* after the ideas have passed out of awareness. According to such

an hypothesis all the conscious experiences of our lives, that are conserved, would form a great coconscious field where they would continue their existence in specific form as ideas, and whence they could be drawn upon for use at any future time.

Various difficulties are raised by this hypothesis. In the first place, there is no evidence that coconscious ideas have a continuous existence. The technical methods of investigation which give evidence of such ideas functioning outside of the awareness of the personal consciousness do not show that at any given moment they are any more extensive than are those which fill the field of the personal consciousness. Indeed, usually, the coconscious field is of very limited extent. There remains an enormous field of conserved experiences to be accounted for. So far then as coconscious ideas can be discovered by our methods of investigation they are *inadequate to account for the whole of the conservation of life's experiences.*

In the second place, these ideas come and go in the same fashion as do those which make up the content of the main personal consciousness; and many are constantly recurring to become coconscious memories. The same problem, of the nature of conservation, therefore confronts us with coconscious ideas in the determination of the mechanism of coconscious memory. To explain conservation through coconscious ideas is but a shifting of the problem. If a broader concept be maintained, namely, that this coconsciousness, which can be

demonstrated in special conditions, is but a fraction of the sum total of coconscious ideas outside of the personal awareness, we are confronted with a concept which from its philosophical nature deals with postulates beyond experience. We can neither prove nor disprove it. There is much that can be said in its support for the deeper we dive into the subconscious regions of the mind the more extensively do we come across evidences of coconscious states underlying specific phenomena. Nevertheless, the demonstration of coconscious states in any number of specific phenomena does not touch the problem of the nature of conservation. In weighing the probability of the hypothesis on theoretical grounds it would seem, as I have already said in a preceding lecture, to be hardly conceivable that ideas that had passed out of mind, the thoughts of the moment of which we are no longer aware, can be treasured, conserved as such in a sort of psychological storehouse or reservoir of consciousness, just as if they were static or material facts. Such a conception would require that every specific state of consciousness, every idea, every thought, perception, sensation and feeling, after it had passed out of mind for the moment, should enter a great sea of ideas which would be the sum total of all our past experiences. In this sum-total millions of ideas would have to be conserved *in concrete* form until wanted again for use by the personal consciousness of the moment. Here would be found, in what you will see at once would be a real subcon-

scious mind beyond the content or confines of our awareness, stored up, so to speak, ready for future use, the mass of our past mental experiences. Here you would find, perhaps, the visualized idea of a seagull soaring over the waters of your beautiful bay conserved in association with the idea of the mathematical formula, a+b=c; the one having originated in a perception of the outer world through the window of your study while you were working at a lesson in algebra which gave rise to the latter. And yet conserved as ideas, as such vast numbers of experiences would be, we should not be aware of them until they were brought by some mysterious agency into the consciousness of the moment. The great mass of the mental experiences of our lives which we have at our command, our extensive educational and other acquisitions from which we consciously borrow from time to time, as well as those which, we have seen, are conserved though they cannot be voluntarily reproduced, all these mental experiences, by the hypothesis, would still have persisting conscious existences in their *original concrete psychological form.*

Such an hypothesis, to my mind, is hardly thinkable, and yet this very hypothesis has been proposed, though in less concrete form perhaps, in the doctrine of the "subliminal mind," a particular form of the theory of the subconscious mind. This doctrine, which we owe to the genius of the late W. H. H. Meyers, has more recently appeared, without full recognition of its paternity, in the

writings of a more modern school of psychology. According to this doctrine our personal consciousness, the ideas which we have at any given moment and of which we are aware, are but a small portion of the sum total of our consciousness. Of this sum-total we are aware, at any given moment, of only a fractional portion. Our personal consciousness is but sort of up-rushes from this great sum of conscious states which have been called the subliminal mind, the subliminal self, the subconscious self. These conscious up-rushes make up the personal "I," with the sense of awareness for their content.

The facts to be explained do not require such a metaphysical hypothesis. All that is required is that our continuously occurring experiences should be conserved in a *form,* and by an arrangement, which will allow the concrete ideas belonging to them to reappear in consciousness whenever the conserved arrangement is again stimulated. This requirement, the theory of conservation, which is generally accepted by those who approach the problem by psycho-physiological methods, fully satisfies. Before stating this theory in specific form let me mention to you still another variety of the subliminal hypothesis, metaphysical in its nature, which appeals to some minds of a philosophical tendency.

Conservation considered as an undifferentiated psychical something or "psyche."—It is difficult to state this hypothesis clearly and precisely for it is necessarily vague, transcending as it does human experience.

It is conceived, as I understand the matter, or at least the hypothesis connotes, that ideas of the moment, after ceasing to be a part of awareness, subside and become merged in some form or other in a larger mind or consciousness of which they were momentary concrete manifestations or phases. This consciousness is conceived as a sort of unity. Ideas out of awareness still persist as consciousness in some form though not necessarily as specific ideas. According to this hypothesis, it is evident that when the ideas of the moment's awareness subside and become merged into the larger consciousness either one of two things must happen; they must either be conserved as specific ideas, or lose their individuality as states of consciousness, and become fused in this larger consciousness as an undifferentiated psychical something. Some like to call it a "psyche," apparently finding that by using a Greek term, or a more abstract expression, they avoid the difficulties of clear thinking.

The first alternative is equivalent to the hypothesis of conservation in the form of coconscious specific ideas which we have just discussed. The second alternative still leaves unexplained the mechanism by which differentiation again takes place in this psychical unity, how a conscious unity becomes differentiated again into and makes up the various phases (ideas) of consciousness at each moment; that is, the mechanism of memory.

But, aside from this difficulty, the hypothesis is opposed by evidence which we have already found

for the persistence of ideas (after cessation as states of consciousness) in some concrete form capable of very specific activity and of producing very specific effects. We have seen that such ideas may under certain conditions continue to manifest the same specific functionating activity as if continuing their existence in concrete form (e. g., so-called subconscious solution of problems, physiological disturbances, etc.). This phenomenon is scarcely reconcilable with the hypothesis that ideas after passing out of awareness lose their concrete specificity and become merged into an undifferentiated psychical something.*

Furthermore, for a concept transcending experience to be acceptable it must be shown that it adequately explains all the known facts, is incompatible with none, and that the facts are not intelligible on any other known principle. These conditions seem to me far from having been fulfilled. Before accepting such a concept it is desirable to see if conservation cannot be brought under some principle within the domain of experience.

Conservation considered as physical residua.—Now the theory of memory which offers a satisfactory explanation of the mode in which registration, con-

* The psyche would have to be one which would be capable of becoming differentiated at one and the same moment into two independent consciousnesses—the personal and the secondary; a soul split into two, so to speak. The desire to explain a secondary consciousness by this doctrine has probably given rise to the popular notion of two souls in a single body!

servation, and reproduction occur postulates the conserved residua as physical in nature. Whenever we have a mental experience of any kind—a thought, or perception of the environment, or feeling—some change, some "trace," is left in the neurons of the brain. I need not here discuss the relation between brain activity and mind activity. It is enough to remind you that, whatever view be held, it is universally accepted that every mental process is accompanied by a physical process in the brain; that, parallel with every series of thoughts, perceptions, or feelings, there goes a series of physical changes of some kind in the brain neurons. And, conversely, whenever this same series of physical changes occurs the corresponding series of mental processes, that is, of states of consciousness, arises. In other words, physical brain processes or experiences are correlated with corresponding mind processes or experiences, and vice versa.* This is known as the doctrine of psycho-physical parallelism. Upon this doctrine the whole of psycho-physiology and psycho-pathology rests. Mental physiology, cerebral localization, and mental diseases

* If the theory of the unconscious presented in these lectures be firmly established this doctrine will have to be modified to this extent, that, while all mental processes are accompanied by brain processes, brain processes that ordinarily have conscious equivalents can within certain limits occur without them and exhibit all the characteristics of intelligence—unconscious cerebration. *Indeed, it becomes probable that every mental process is a part of a larger mechanism in which unconscious brain processes not correlated with the specifically conscious processes are integral factors.*

excepting on its assumption are unintelligible—indeed, the brain as the organ of the mind becomes meaningless. We need not here inquire into the nature of the parallelism, whether it is of the nature of dualism, e. g., a parallelism of two different kinds of facts, one psychical and the other physical; or whether it is a monism, i. e., a parallelism of two different aspects of one and the same fact or a parallelism of a single reality (mind) with a mode of apprehending it (matter)—mind and matter in their inner nature being held to be practically one and the same. The theory of memory is unaffected whichever view of the mind-brain relation be held.

Now, according to the psycho-physiological theory of memory, with every passing state of conscious experience, with every idea, thought, or perception, the brain process that goes along with it leaves some trace, some residue of itself, within the neurons and in the functional arrangements between them. It is an accepted principle of physiology that when a number of neurons, involved, let us say, in a coördinated sensori-motor act, are stimulated into functional activity they become so associated and the paths between them become so opened or, as it were, sensitized, that a *disposition* becomes established for the whole group, or a number of different groups, to function together and reproduce the original reaction when either one or the other is afterward stimulated into activity. This "disposition" is spoken of in physiological language as a lowering of the threshold of excitability

—a term which does not explain but only describes the fact. For an explanation we must look to the nature of the physical change that is wrought in the neurons by the initial functioning. This change we may speak of as a *residuum.*

Similarly a system of brain neurons, which in any experience is correlated in activity with conscious experience, becomes, so to speak, sensitized and acquires, in consequence, a "disposition" to function again as a system (lowering of thresholds?) in a like fashion; so that when one element in the system is again stimulated it reproduces the whole original brain process, and with this reproduction (according to the doctrine of psycho-physical parallelism) there is a reproduction of the original conscious experience. In other words, without binding ourselves down to absolute precision of language, it is sufficiently accurate to say that every mental experience leaves behind a residue, or a trace, of the physical brain process in the chain of brain neurons. This residue is the physical *register* of the mental experience. *This physical register may be conserved or not.* If it is conserved we have the requisite condition for memory; the *form* in which our mental experiences are conserved. But it is not until these physical registers are stimulated and the original brain experience is reproduced that we have memory. If this occurs the reproduction of the brain experience reproduces the conscious experience, i. e., conscious memory (according to whatever theory of parallelism is main-

tained). Thus in all ideation, in every process of thought, the record of the conscious stream may be registered and conserved in the correlated neural process. Consequently, the neurons in retaining residua of the original process become, to a greater or less degree, *organized into a functioning system* corresponding to the system of ideas of the original mental process and capable of reproducing it. When we reproduce the original ideas in the form of memories it is because there is a reproduction of the physiological neural process.

It is important to note that just as, on the psychological side, memory always involves the awakening of a previous conscious experience by an associated idea, one that was an element in the previous system of associated sensations, perceptions, thoughts, etc., making up the experience, so, on the physiological side, we must suppose that it involves stimulation of the whole system of neurons belonging to this experience by the physiological stimulus corresponding to the conscious element or stimulus. For instance, if I see my friend A, the image is not a memory, though it is one I have had many times before and has left residua of itself capable of being reproduced as memory. But if I see his hat, and immediately previously linked pictorial images of him arise in my mind; or, if, when I see him, there arise images of his library in which I have previously seen him, these images are memory. A conscious memory is always the reproduction of an experience by an associated idea

or other element of experience (conscious or subconscious). Similarly we must infer that the neurons correlated with any past mental experience are stimulated by associated neuron processes. This is the foundation-stone of mental physiology; for upon the general principle of the correlation of mental processes with neural processes rests the whole of cerebral localization and brain physiology.

Although we assume newly arranged dynamic associations of neurons corresponding to associations of ideas, we do not know how this rearrangement is brought about, though we may conceive of it as following the physiological laws of lowering of thresholds of excitability. Nor do we know whether the modifications left as residua (by which the thresholds are lowered) are physical or chemical in their nature, though there is some reason for believing they may be chemical.

Chemical and physical theories of residua.—It is possible that, through chemical changes of some kind left in the system of neurons corresponding to an experience, the neurons may become sensitized so as to react again as a whole to a second stimulus applied to one element. In other words a hyper-susceptibility may become established. There is a physiological phenomenon, known as anaphylaxis, which may possibly prove more than analogous, in that it depends upon the production, through chemical changes, of hyper-susceptibility to a stimulus which before was inert. The phenomenon is

one of sensitizing the body to certain previously innocuous substances. If, for instance, a serum from a horse be injected into a guinea pig no observable reaction follows. But, if a second dose be injected, a very pronounced reaction follows and the animal dies with striking manifestations called anaphylactic shock. This consists of spasm of the bronchioles of the lungs induced by contraction of their unstriated muscles and results in an attack of asphyxia.*

The mechanism of anaphylaxis is a very complicated one involving the production in the blood of chemical substances called antibodies, and is far from being thoroughly understood. One theory is that sensitization consists in the "fixing" of the cells of the tissues with these antibodies. This may or may not be correct—probably not—and I am far from wishing to imply that sensitization of the neurons, as a consequence of functioning, has anything in common with the mechanism of sensitizing the body in anaphylaxis. I merely wish to point out that sensitizing nervous tissue through chemical changes is a physiological concept quite within the bounds of possibility; and, as all functioning is probably accompanied by metabolic (chemical) changes, such metabolic changes may well persist in neurons after brain reactions produce sensitization.

* Dr. S. J. Meltzer has pointed out in a very suggestive article (*Journal American Medical Association,* Vol. IV, No. 12) that the anaphylactic attack resembles that of bronchial asthma in man, and argues that this latter disease may be the same phenomenon.

If this hypothesis of sensitization should be proven it would offer an intelligible mechanism of the phenomenon of memory. If the system of neurons engaged in any conscious experience were sensitized by chemical changes it would acquire a hyper-susceptibility. The system as a whole would consequently be excited into activity by any other functioning system of neurons with which it was in anatomical association and might reproduce the originally correlated conscious experience.

Various theories based on known or theoretical chemical or physical alterations in the neurons have been proposed to account for memory on the physiological side. Robertson * has proposed that it is of the nature of autocatalysis. Catalysis is the property possessed by certain bodies called catalyzers of initiating or accelerating chemical reactions which would take place without the catalyzer, but more slowly. "A catalyzer is a stimulus which excites a transformation of energy. The catalyzer plays the same rôle in a chemical transformation as does the minimal exciting force which sets free the accumulation of potential energy previous to its transformation into kinetic energy. A catalyzer is the friction of the match which sets free the chemical energy of the powder magazine." †

Numerous examples of catalytic actions might

* T. Brailsford Robertson: Sur la Dynamique chimique du système nerveux central, Archiv. de Physiol. v. 6, 1908, p. 388. Ueber die Wirkung von Säuren auf das Athmungs Zentrum, Arch. f. die Gesammte Physiologie, Bd. 145, Hft. 5 u. 6, 1912.

† Stéphane Leduc: The Mechanism of Life.

be given from chemistry. The inversion of sugar by acids, the decomposition of hydrogen peroxide by platinum black, fermentation by means of a soluble ferment or diastase, a phenomenon which may almost be called vital, are all instances. According to Leduc "the action of pepsin, of the pancreatic ferment, of zymase and other similar ferments has a great analogy with the purely physical phenomenon of catalysis."

In auto-catalysis one of the *products* of the reaction acts as the catalyzer. Now Robertson concluded, as a result of his experiments carried out on frogs, that the processes which accompany the excitation of the cells of the neurons are of the nature of catalysis; for he found that they have as one effect the production of an acid; and he also found that acids accelerate such processes which he concludes to be probably of the nature of oxidations. "The chemical phenomena which constitute the activity of a neuron cell," he says, "seem to us then an *auto-catalytic oxidation,* that is to say, an oxidation in which one of the products of the reaction acts as a catalyzer in the reaction." It occurred to him then that the physiological correlate of memory might be explained on the principle of auto-catalysis. When, to test this hypothesis, he came to compare the results of certain psychological experiments on memory, made by two different experimenters (Ebbinghaus and Smith), with the law characteristic of auto-catalytic chemical reactions, he found that they corresponded in a surprisingly

close way with this law. That is to say, assuming the value of the residua of memory (measured by the number of syllables learnt by heart) to be proportional to the mass of the chemical product of auto-catalysis, we should expect that the increase of the number of syllables or other experiences retained by memory following increase of repetitions would obey the law of catalytic reaction as expressed in the mathematical formula established for the reaction. Now, as a fact, he found that the number of syllables that should be so retained in memory, as calculated theoretically by the formula, corresponded in a remarkable way with the actual number determined by experiment. "The agreement was closer," the author states, "than that which generally obtained in experiments in chemical dynamics carried out *in vitro.*" Robertson sums up his conclusions as follows:

"5th: We have shown that the phenomenon of which the subjective aspect is called 'memory' is of a nature indicating that the autocatalyzed chemical reactions form the mechanism conditioning the response of the central nervous system to stimuli.

"6th. In admitting that the extent of the trace of memory may be proportionate to the mass of a product of an autocatalyzed chemical reaction unfolding itself in the central nervous system as the result of the application of a stimulus, we have shown that the relation which one theoretically deduces between the mass of memory material and

the number of repetitions corresponds to that which has been found by experience.

"7th. On the basis of the hypothesis above mentioned we have shown that the law of Weber-Fechner admits of a rational physico-chemical interpretation, and that the result thus obtained, provided the hypothesis above mentioned be an exact representation of facts, is that the intensity of the sensation is at each instant proportionate to the mass of the product of the autocatalyzed chemical reaction above mentioned and, consequently, to the extent of the trace of memory."

While it is easy to understand that auto-catalysis may take part in the chemical process which underlies the performance of simple volition, as inferred by Robertson,* and perhaps reproduction in the memory process, it is difficult to understand how such a chemical action can explain conservation. The problem is not that of acceleration of an action, but of something like the storing up of energy.

Rignano† has proposed an hypothesis according to which the cells of the nervous system are to be considered as so many accumulators, analogous to electric accumulators or storage batteries. "The similarities and differences which nerve currents present in comparison with electric currents warrant us in assuming in nerve currents some of the prop-

* Further studies in the chemical dynamics of the central nervous system, Folio Neuro-Biologica, Bd. VI, Nos. 7 and 8, 1912.

† Eugenio Rignano: Upon the Inheritance of Acquired Characters. Trans. by Basil C. H. Harvey, Chicago. Open Court Publishing Co., 1911.

erties of electric currents, and in attributing at the same time to the first other properties which the electric do not possess, provided these qualities are not incompatible with the others."

Now, according to the hypothesis, the specific nervous current set up by any stimulus forms and deposits in the nucleus of the cells (through which the current flows) a *substance* which adds itself to the others already there without changing them and which is capable, under appropriate conditions, of being discharged and restoring the same *specific* current by which it was produced. Each cell thus becomes what Rignano calls an *elementary nervous accumulator*. He points out that "both the conception of *accumulators of nervous energy in tension,* and that of *accumulators of a specific nervous energy constituting their specific irritability,*" which the hypothesis includes, are not new but "an ordinary conception very generally employed." . . . "The only new thing which the above definition includes is the hypothesis that the substance, which is thus capable of giving as a discharge a given nervous current, *was produced and deposited* only by a nervous current of the same specificity, but in the inverse direction, and could have been produced and deposited only by such a current." "In just this capacity of restoring again the same specificity of nervous current as that by which each element had been deposited one would look for the cause of the mnemonic faculty, in the widest sense, which all living matter possesses. And further the very essence

of the mnemonic faculty would consist entirely in this restitution."

"*The specific elementary accumulators* (previously termed specific potential elements) are thus susceptible now of receiving a third name, namely, that of *mnemonic elements.*" "The preservation of memories is to be ascribed to the accumulations of substance," while "the reawakening of these memories consists in the restitution of the same currents [by discharge of the substance] as had formerly constituted the actual sensation or impression."

By this hypothesis Rignano explains not only memory but the inheritance of acquired characters and the whole process of specialization of cells, all of which phenomena are special instances of such elementary accumulators of organic energy being formed and discharged.

Any attempt, with our present knowledge, to postulate particular kinds of chemical or physical changes in the nervous system as the theoretical residua of physiological dispositions left by psychological experiences must necessarily be speculative. And any hypothesis can only have so much validity as may come from its capability of explaining the known facts. It is interesting, however, to note some of the directions which attempts have taken to find a solution of the problem. For the present it is best to rest content with the theory to which we have been led, step by step, in our exposition, namely, that conservation is effected by some sort of physiological residua. This theory, of course, is

an old one, and has been expressed by many writers. What we want, however, is not expressions of opinion but facts supporting them. It would seem as if the facts accumulated in recent years by experimental and abnormal psychology all tended to strengthen the theory, notwithstanding an inclination in certain directions to seek a psychological interpretation of conservation.

Some minds of a certain philosophical bent will not be able to get over the difficulty of conceiving how a psychological process can be conserved by the physical residuum of a physiological process. But this is only the old difficulty involved in the problem of the relation between mind and brain of which conservation is only a special example. That a mind process and a brain process are so intimately related that either one determines the other there is no question. It is assumed in every question of psycho-physiology. The only question is the How. I may point out in passing, but without discussion, that if we adopt the doctrine of panpsychism for which I have elsewhere argued *—namely, that there is only one process—the mental—in one and the same individual, and that what we know as the physical process is only the mode of apprehending the mental process by another individual; if we adopt this doctrine of monism the difficulty is solved. In other words, the psychical (and consciousness) is

* Prince: The Nature of Mind and Human Automatism, 1885: Hughlings-Jackson on the Connection between the Mind and Brain, *Brain*, p. 250, 1891; The Identification of Mind and Matter, *Philosoph. Rev.*, July, 1904.

reality, while matter (and physical process) is a *phenomenon,* the disguise, so to speak, under which the psychical appears when apprehended through the special senses. According to this view in their last analysis all physical facts are psychical in nature, although not psychological (for psychological means consciousness), so that physiological and psychical are one. To this point I shall return in another lecture.

Neurograms.—Whatever may be the exact nature of the theoretical alterations left in the brain by life's experiences they have received various generic terms; more commonly "brain residua," and "brain dispositions." I have been in the habit of using the term *neurograms* to characterize these brain records. Just as telegram, Marconigram, and phonogram precisely characterize the form in which the physical phenomena which correspond to our (verbally or scripturally expressed) thoughts, are recorded and conserved, so neurogram precisely characterizes my conception of the form in which a system of brain processes corresponding to thoughts and other mental experiences is recorded and conserved.*

* Richard Semon (Die Mneme, 1908) has adopted the term Engramm with much the same signification that I have given to Neurogram, excepting that Engramm has a much wider meaning and connotation. It is not limited to nervous tissue, but includes the residual changes held by some to be left in all irritable living substances after stimulation. All such substances are therefore capable of memory in a wide sense (Mneme).

Of course it must not be overlooked that such neurograms are pure theoretical conceptions, and have never been demonstrated by objective methods of physical research. They stand in exactly the same position as the atoms and molecules and ions and electrons of physics and chemistry, and the "antibodies" and "complements" of bacteriology. No one has seen any of these postulates of science. They are only inferred. All are theoretical concepts; but they are necessary concepts if the phenomena of physical, chemical, and bacteriological science are to be intelligible. The same may be said for brain changes if the phenomena of brain and mind are to be intelligible.

And so it happens that though our ideas pass out of mind, are forgotten for the moment, and become dormant, their physiological records still remain, as sort of vestigia, much as the records of our spoken thoughts are recorded on the moving wax cylinder of the phonograph. When the cylinder revolves again the thoughts once more are reproduced as auditory language. A better analogy would be the recording and reproducing of our thoughts by the dynamic magnetization of the iron wire in another type of the instrument. The vibration of the voice by means of a particular electrical mechanism leaves *dynamic traces* in the form of corresponding magnetic changes in the passing wire, and when the magnetized wire again is passed before the reproducing diaphragm the spoken thoughts are again reproduced. So, when the ideas of any given con-

scious experience become dormant, the physiological records, or dynamic rearrangements, still remain organized as physiological unconscious complexes, and, with the excitation of these physiological complexes, the corresponding psychological memories awake.

It is only as such physiological complexes that ideas that have become dormant can be regarded as still existing. If our knowledge were deep enough, if by any technical method we could determine the exact character of the modifications of the dispositions of the neurons that remain as vestiges of thought and could decipher their meaning, we could theoretically read in our brains the record of our lives, as if graphically inscribed on a tablet. As Ribot has well expressed it: " . . . Feelings, ideas, and intellectual actions in general are not fixed and only become a portion of memory when there are corresponding residua in the nervous system—residua consisting, as we have previously demonstrated, of nervous elements, and dynamic associations among those elements. On this condition, and this only, can there be conservation and reproduction." * *Dormant ideas are thus equivalent to conserved physiological complexes.* We may use either term to express the fact.

The observations and experiments I have recited have led us to the conclusion that conservation of an experience is something quite specific and dis-

* Th. Ribot: Diseases of Memory, pp. 154, 155. Translation by William Huntington Smith. D. Appleton & Co.

tinct from the reproduction of it. They compel us to the conclusion that we are entitled, as I pointed out at the opening of these lectures, to regard memory as a *process* and the result of at least two factors—conservation and reproduction. But as conservation is meaningless unless there is something to be conserved, we must also assume *registration;* that is, that every conserved mental experience is primarily registered somehow and somewhere. Conservation implies registration.

Such is the theory of memory as a *process of registration, conservation, and reproduction.* Thus it will be seen (according to the theory) that ideas which have passed out of mind are preserved, if at all, not as ideas, but as physical alterations or records in the brain neurons and in the functional dynamic arrangements between them.

From this you will easily understand that while, as you have seen from concrete observations, we can have conservation of experiences without memory (reproduction) we cannot have memory without conservation. Three factors are essential for memory, and memory may fail from the failure of any one of them. Unless an experience is registered in some form there will be nothing to preserve, and memory will fail because of lack of registration. If the experience has been registered, memory may fail, owing to the registration having faded out, so to speak, either with time or from some other reason; that is, nothing having been conserved, nothing can be reproduced. Finally, though an experi-

ence has been registered and conserved, memory may still fail, owing to failure of reproduction. The neurographic records must be made active once more, stimulated into an active process, in order that the original experience may be recalled, i.·e., reproduced. Thus what we call conscious memory is the final result of a process involving the three factors, registration, conservation, and reproduction.

Physiological memory.—Memory as commonly regarded and known to psychology is a *conscious* manifestation but, plainly, if we regard it, as we have thus far, as a process, then, logically, we are entitled to regard any process which consists of the three factors, registration, conservation, and reproduction of experiences, as memory, whether the final result be the reproduction of a conscious experience, or one to which no consciousness was ever attached. In other words, theoretically it is quite possible that acquired physiological body-experiences may be reproduced by exactly the same process as conscious experiences, and their reproduction would be entitled to be regarded as memory quite as much as if the experience were one of consciousness. In principle it is evident that it is entirely immaterial whether that which is reproduced is a conscious or an unconscious experience so long as the mechanism of the process is the same.

Now, as a matter of fact, there are a large number of acquired physiological body-actions which, though unconscious, must be regarded quite as much

as manifestations of memory as is the conscious repetition of the alphabet, or any other conscious acquisition. Having been acquired they are *ipso facto* reproductions of organized experiences. We all know very well that movements acquired volitionally, and perhaps laboriously, are, after constant repetition, reproduced with precision without conscious guidance.

They are said to be automatic; even the guiding afferent impressions do not enter the content of consciousness. The maintaining of the body in one position, sitting or standing, though requiring a complicated correlation of a large number of muscles, is carried out without conscious volition. It is the same with walking and running. Still more complicated movements are similarly performed in knitting, typewriting and playing the piano, shaving, buttoning a coat, etc. We do not even know the elementary movements involved in the action, and must become aware of them by observation. The neurons remember, i. e., conserve and reproduce the process acquired by previous conscious experiences. But though it is memory it is not conscious memory, it is unconscious memory, i. e., a physiological memory. The acquired dispositions repeat themselves—what is called habit. Precision in games of skill largely depend upon this principle. A tennis player must learn the "stroke" to play the game well. This means that the muscles must be coordinated to a delicate adjustment which, once learned, must be unconsciously remembered and

used, without consciously adjusting the muscles each time the ball is hit. Indeed some organic memories are so tenacious that a player once having learned the stroke finds great difficulty even by effort of will in unlearning it and making his muscles play a different style of stroke. Likewise one who has learned to use his arms in sparring by one method finds difficulty in learning to spar by another method. In fact almost any acquired movement is compounded of elementary movements which by repetition were linked and finely adjusted to produce the resultant movement, and finally conserved as an *unconscious physiological arrangement.* As one writer has said, the neuron organization "faithfully preserves the records of processes often performed."

In what has just been said the fact has not been overlooked that the initiation or modification of any of the movements which have been classed as physiological memory (knitting, typewriting, games of skill, etc.), even after their acquisition, is necessarily voluntary and therefore, so far, a conscious memory, but the nice coördination of afferent and efferent impulses for the adjustment of the muscles involved becomes, by repetition, an unconscious mechanism, and is performed outside the province of the will as an act of *unconscious memory.* By repeated experience the neurons become functionally organized in such a way as to acquire and conserve a functional "disposition" to reproduce the movements originally initiated by volition.

Physiological memory has indeed, as it seems, been recently experimentally demonstrated by Rothmann, who educated a dog from which the hemispheres had been removed to perform certain tricks; e. g., to jump over a hurdle.*

Still another variety of memory is *psycho-physiological.* This type is characterized by a combination of psychological and physiological elements and is important, as we shall see later, because of the conspicuous part which such memories play in pathological conditions. Certain bodily reactions which are purely physiological, such as vaso-motor, cardiac, respiratory, intestinal, digestive, etc., disturbances, become, as the result of certain experiences, linked with one or another psychical element (sensations, perceptions, thoughts), and, this linking becoming conserved as a "disposition," the physiological reaction is reproduced whenever the psychical element is introduced into consciousness. Thus, for example, the perception or thought of a certain person may become, as the result of a given social episode, so linked with blushing or cardiac palpitation that whenever the former is thrust into consciousness, no matter how changed the conditions may be from those of the original episode, the physiological reaction of the blood vessels or heart is reproduced. Here the original psycho-physiological experience—the association of an idea (or psychical element) with the physiological process is conserved and repoduced. Such a reproduction is

* Cf. Lecture VIII, p. 238.

essentially a psycho-physiological memory depending wholly upon the acquired disposition of the neurons.*

Thus, to take an actual example from real life, a certain person during a series of years was expecting to hear bad news because of the illness of a member of the family and consequently was always startled, and her "heart always jumped into her throat," whenever the telephone rang. Finally the news came. That anxiety is long past, but now when the telephone rings, although she is not expecting bad news and no thought of the original experience consciously arises in her mind, her "heart always gives a leap and sometimes she bursts into a perspiration."

A beautiful illustration of this type of memory is to be found in the results of the extremely important experiments, for psychology as well as physiology, of Pawlow and his co-workers in the reflex stimulation of saliva in dogs. These experiments show the possibility of linking a physiological process to a psychological process by education, and through the conservation of the association reproducing the physiological process as an act of unconscious memory. (The experiments, of course, were undertaken for an entirely different purpose, namely, that of studying the digestive processes only.) It should be explained that it was shown that the salivary

* Emotion is a factor in the genesis of such phenomena, but may be disregarded for the present until we have studied the phenomena of the emotions by themselves.

glands are selective in their reaction to stimuli in that they do not respond at all to some (pebbles, snow), but respond to others with a thin watery fluid containing mere traces of mucin or a slimy mucin-holding fluid, according as to whether the stimulating substance is one which the dog rejects, and which therefore must be washed out or diluted (sands, acids, bitter and caustic substances), or is an eatable substance and must as a food bolus be lubricated for the facilitation of its descent. Dryness of the food, too, largely determined the quantity of the saliva.

Now the experiments of the St. Petersburg laboratory brought out another fact which is of particular interest for us and which is thus described by Pawlow. "In the course of our experiments it appeared that all the phenomena of adaptation which we saw in the salivary glands under *physiological* conditions, such, for instance, as the introduction of the stimulating substances into the buccal cavity, reappeared in exactly the same manner under the influence of *psychological* conditions—that is to say, when we merely drew the animal's attention to the substances in question. Thus, when we pretended to throw pebbles into the dog's mouth, or to cast in sand, or to pour in something disagreeable, or, finally, when we offered it this or that kind of food, a secretion either immediately appeared or it did not appear, in accordance with the properties of the substance which we had previously seen to regulate the quantity and nature of the juice when

physiologically excited to flow. If we pretended to throw in sand a watery saliva escaped from the mucous glands; if food, a slimy saliva. And if the food was dry—for example, dry bread—a large quantity of saliva flowed out even when it excited no special interest on the part of the dog. When, on the other hand, a moist food was presented—for example, flesh—much less saliva appeared than in the previous case however eagerly the dog may have desired the food. This latter effect is particularly obvious in the case of the parotid gland." *

It is obvious that in these experiments, when the experimenter pretended to throw various substances into the dog's mouth, the action was effective in producing the flow of saliva of specific qualities because, through repeated experiences, the pictorial images (or ideas) of the substance had become associated with the specific physiological salivary reaction, and this association had been conserved as a neurogram. Consequently the neurographic residue when stimulated each time by the pretended action of the experimenter reproduced reflexly the specific physiological reaction and, so far as the process was one of registration, conservation, and reproduction, it was an act of psychophysiological memory.

That this is the correct interpretation of the educational mechanism is made still more evident by other results that were obtained; for it was found

* The Work of the Digestive Glands (English Translation), p. 152.

that the effective psychical stimulus may be part of wider experiences or a complex of ideas; everything that has been in any way psychologically associated with an object which physiologically excites the saliva reflex may also produce it; the plate which customarily contains the food, the furniture upon which it stands; the person who brings it; even the sound of the voice and the sound of the steps of this person.*

Indeed, it was found that any sensory stimulus could be educated into one that would induce the flow of saliva, if the stimulus had been previously associated with food which normally excited the flow. "Any ocular stimulus, any desired sound, any odor that might be selected, and the stimulation of any part of the skin, either by mechanical means or by the application of heat or cold, have in our hands never failed to stimulate the salivary glands, although they were all of them at one time supposed to be inefficient for such a purpose. This was accomplished by applying these stimuli simultaneously with the action of the salivary glands, this action having been evolved by the giving of certain kinds of food or by forcing certain substances into the dog's mouth." † It is obvious that reflex excitation thus having been accomplished by the education of the nerve centers to a previously indifferent stimulus the reproduction of the process

* Psychische Erregung der Speicheldrusen, J. P. Pawlow. Ergebnisse der Physiologie, 1904, I Abteil., p. 182.

† Huxley Lecture, *Br. Med. Jour.*, October 6, 1906.

through this stimulus is, in principle, an act of physiological memory.*

The experiences of the dogs embraced quite large systems of ideas and sensory stimuli which included the environment of persons and their actions, the furniture, plates, and other objects; and various ocular, auditory, and other sensory stimuli applied arbitrarily to the dogs. All these experiences had been welded into an associative system and conserved as neurograms. Consequently it was only necessary to stimulate again any element in the neurogram to reproduce the whole process, including the specific salivary reaction.

We shall see later that these experiments acquire additional interest from the fact that in them is to be found the fundamental principle of what under other conditions can be recognized as a *psychoneurosis—an abnormal or perverted association and memory.* The effects produced by this association of stimuli may be regarded as the germ of the habit psychosis, and in these experiments we have experimental demonstration of the mechanism of these psychoses—but this is another story which we will take up by and by.

Recollection.—This is as good a place as any other to call attention to a certain special form of memory. Recollection and memory are not synonymous

* Pawlow overlooked in these experiments the possible, if not probable, intermediary of the emotions in producing the effects. The principle, however, would not be affected thereby.

terms. We are accustomed to think of memory as including, in addition to other qualities, recollection, i. e., what is called localization of the experience in time and space. It connotes an awareness of the content of the memory having been once upon a time a previous experience which is more or less accurately located in a given past time (yesterday, or a year ago, or twenty years ago), and in certain local relations of space (when we were at school, or riding in a railway car with so and so). But, as Ribot points out, this (relatively to physiological memories) is . . . "only a certain kind of memory which we call perfect." For we have just seen that, when memory is considered as a process, reproduced physiological processes, which contain no elements of consciousness and therefore of localization, may be memory. But more than this, I would insist, *recollection is only a more perfect kind of conscious memory.* Ribot would make recollection a peculiarity of all conscious memory, but this is plainly an oversight. As we saw in previous lectures there may be *conscious memories which do not contain any element of recollection,* or, in other words, such conscious memories resemble in every way, in principle, the reproduction of organic neuron processes in that they have no conscious localization in the past. In dissociated personalities, for instance, and in other types of *dissociated conditions* (functional amnesia, post-hypnotic states, etc.), the names of persons, places, faces, objects, and even complex ideas may flash into the mind without any

element of recollection. The person may have no idea whence they come, but by experiment it is easy to demonstrate that they are automatic memories of past experiences.* In the sensory automatisms known as *crystal visions,* pictures which accurately reproduce, symbolically, past experiences of which the subject has no recollection may vividly arise in the mind. Such pictures are real conscious symbolic memories. *Dreams,* too, as we have seen, may be unrecognized memories in that they may reproduce conscious experiences, something heard or seen perhaps, but which has been completely forgotten even when awake. Again, modern methods of investigation show that numerous ideas that occur in the course of our *everyday thoughts*—names, for instance—are excerpts from, or vestiges of, previous conscious experiences of which we have no recollection, that is to say, they are memories, reproductions of formerly experienced ideas. In the absence of recollection they seem to belong only to the present. Memories which hold an intermediate place between these automatic memories and those of true recollection are certain memories, like the alphabet or a verse or phrase once learned by heart which we are able at best to localize only dimly in the past. Indeed, the greater part of our *vocabulary* is but conscious memory without localization in

* Compare "The Dissociation," pp. 254, 261. For examples, see also "Multiple Personality," by Boris Sidis, and "The Lowell Case of Amnesia," by Isador Coriat, *The Journal of Abnormal Psychology,* Vol. II, p. 93.

the past. So we see that recollection is not an essential even for conscious memories. It is only a particular phase of memory just as are automatic conscious memories.

LECTURE VI

SUBCONSCIOUS PROCESSES

In what I have said thus far I have had another purpose in view than that of a mere exposition of the psycho-physiological theory of memory. This other and chief purpose has been to lay the foundation for a conception of the *Unconscious* in its larger aspect. We have seen that thoughts and other conscious experiences that have passed out of mind may be and to an enormous extent are conserved and, from this point of view, may be properly regarded as simply *dormant*. Further we have seen that all the data collected by experimental pathology and other observations lead to the conclusion that conservation is effected in the form of neurographic residua or brain neurograms—organized physiological records of passing mental experiences of all sorts and kinds. We have seen that these neurographic records conserve not only our educational acquisitions and general stock of knowledge—all those experiences which we remember—but a vast number of others which we cannot spontaneously recall, including, it may be, many which date back to early childhood, and many which we have deliberately repressed, put out of mind and intentionally

forgotten. We have also seen that it is not only these mental experiences which occupied the focus of our attention that leave their counterpart in neurograms, but those as well of which we are only partially aware—absent-minded thoughts and acts and sensations and perceptions which never entered our awareness at all—subconscious or coconscious ideas as they are called. Finally, we have seen that the mental experiences of every state, normal, artificial, or pathological, whatever may be the state of the personal consciousness, are subject to the same principle of conservation. In this way, in the course of any one's natural life, an enormous field of neurograms is formed representing ideas which far transcend in multitude and variety those of the personal consciousness at any given moment and all moments, and which are far beyond the voluntary beck and call of the personal consciousness of the individual.

Neurograms are concepts and, by the meaning of the concept, they are unconscious. It is not necessary to enter into the question whether they are in their ultimate nature psychical or physical. That is a philosophical question.* They are at any rate unconscious in this sense; they are devoid of consciousness, i. e., have none of the psychological at-

* I forbear to enter into the question of the nature of consciousness and matter. In the last analysis, matter and mind probably are to be identified as different manifestations of one and the same principle—the doctrine of monism—call it psychical, spiritual, or material, or energy, as you like, according to your fondness for names. For our purpose it is not necessary to touch this philosophical problem as we are dealing only with specific biological experiences.

tributes of any of the elements of consciousness, and in the sense in which any physiological arrangement or process is not conscious, i. e., is unconscious. We have here, then, in the concept of brain residual neurograms the fundamental meaning of the *Unconscious.** *The unconscious is the great storehouse of neurograms which are the physiological records of our mental lives.* By the terms of the concept neurograms are primarily passive—the potential form, as it were, in which psychical energy is stored. This is not to say, however, that, from moment to moment, certain ones out of the great mass may not become active processes. On the contrary, according to the theory of memory, when certain complexes of neurograms are stimu-

* Also quite commonly termed the Subconscious. Unfortunately the term unconscious, as noun or adjective, is used in two senses, viz., (1) pertaining to unawareness (for example, I am unconscious of such and such a thing), and (2) in the sense of not having the psychological attribute of consciousness, i. e., non-conscious.

In the first sense the adjective is used, as in the phrase "unconscious process" to define a process of which we are unaware without connotation as to whether it is a psychological process or a brain process; also the noun (The Unconscious) is used to signify something not in awareness regardless of whether that something is psychological or not; on the other hand, as an adjective it is also used, as in the phrase "unconscious ideas," to specifically signify real ideas of which we are unaware.

In the second sense, as noun or adjective, it is used to denote specifically brain residua or processes, which, of course, are devoid of consciousness. With this interchange of meaning the term is apt to be confusing and is lacking in precision. *In the text unconscious will be used always with the second meaning, unless inverted commas or the context plainly indicate the first meaning.* (Cf. Lecture VIII, pp. 248-254).

lated they take on activity and function—the potential energy becomes converted into dynamic energy. In correlation with the functioning of such neurographic complexes, the complexes of ideas which they conserve—the psychological equivalents —are reproduced (according to the doctrines of monism and parallelism) and enter the stream of the personal consciousness. The unconscious becomes the conscious (monism), or provided with correlated conscious accompaniments (parallelism), and we may speak of the ideas arising out of the unconscious.''

Neurograms may also function as subconscious processes exhibiting intelligence and determining mental and bodily behavior.—Here two important questions present themselves. Is it a necessary consequence that when unconscious neurograms become active processes psychological equivalents must be awakened; and when they are awakened, must they *necessarily* enter the stream of the personal consciousness? If both these questions may be answered in the negative, *then plainly in either case such active processes become by definition subconscious processes*—of an *unconscious* nature in the one case and of a *coconscious* nature in the other. They would be subconscious because in the first place they would occur outside of consciousness and there is no awareness of them, and in the second place they would be a dissociated second train of processes distinct from those engaged in the conscious stream of the mo-

ment. Theoretically such subconscious processes, whether unconscious or coconscious, might perform a variety of functions according to the specificity of their activities.

Now, in preceding lectures, when marshalling the evidence for conservation, we met with a large number and variety of phenomena (automatic writing, hallucinations, post-hypnotic phenomena, dreams, "unconscious" solution of problems, etc.), which clearly demonstrated that memory might be manifested by processes of which the individual was unaware and which were outside the content of consciousness. Hence these phenomena presented very clear evidence of the occurrence of processes that may be properly termed *subconscious*.* Attention, however, was primarily directed to them only so far as they offered evidence of conservation and of the mode by which conservation was effected. But necessarily these evidences were subconscious manifestations of forgotten experiences (memory), and in so far as this was the case we saw that unconscious neurograms can take on activity and function subconsciously; i. e., without their psychological equivalents (i. e., correlated conscious memory) entering the stream of the personal consciousness. We may now speak of these processes as **subconscious memory**. But when their manifestations are carefully scrutinized they will be found to exhibit more than memory. They may, for instance, exhibit logical

* Also termed by some writers *unconscious*. (See preceding footnote.)

elaboration of the original experiences, and what corresponds to fabrication, reasoning, volition and affectivity. *Theoretically* this is what we should expect if any of the conserved residual experiences of life can function subconsciously. As life's experiences include fears, doubts, scruples, wishes, affections, resentments, and numerous other affective states, innate dispositions, and instincts, the subconscious memory process necessarily may include any of these affective complexes of ideas and tendencies. An affective complex means an idea (or ideas) linked to one or more emotions and feelings. In other words, any acquired residua drawn from the general storehouse of life's experiences may be systematized with feelings and emotions, the innate dispositions and instincts of the organism. Now it is a general psychological law that such affective states tend by the force of their conative impulses to carry the specific ideas with which they are systematized to fulfilment through mental and bodily behavior. Consequently, theoretically, it might thus well be that the residua of diverse experiences, say a fear or a wish, by the force of such impulses might become activated into very specific subconscious processes with very specific tendencies expressing themselves in very specific ways, producing very specific and diverse phenomena. Thus memory would be but one of the manifestations of subconscious processes.

Now, as a matter of fact, there are a large number of phenomena which not only justify the postu-

lation of subconscious processes but also the inference that such processes, activated by their affective impulses, may so influence conscious thought that the latter is modified in various ways; that it may be determined in this or that direction, inhibited, interrupted, distorted, made insistent, and given pathological traits. There is also a large variety of bodily phenomena which can be explicitly shown to be due to subconscious processes, and many which are only explicable by such a mechanism. Indeed, a subconscious process may become very complex and constellated with any one or many of the psychophysiological mechanisms of the organism. In special artificial and pathological conditions where such processes reach their highest development, as manifested through their phenomena, they may exhibit that which when consciously performed is understood to be *intelligence,* comprising reasoning, constructive imagination, volition, and feeling; in short, what is commonly called thought or mental processes. Memory, of course, enters as an intrinsic element in these manifestations just as it is an intrinsic element in all thought. The automatic script that describes the memories of a long-forgotten childhood experience may at the same time reason, indulge in jests, rhyme, express cognition and understanding of questions—indeed (if put to the test), might not only pass a Binet-Simon examination for intelligence, but take a high rank in a Civil Service examination. In these more elaborate exhibitions of subconscious intelligence it is obvious

that there is an exuberant efflorescence of the residua deposited in many unconscious fields by life's experiences and synthesized into a *subconscious functioning system.*

It is beyond the scope of this lecture to examine into the particular *mechanism* by which a subconscious process is provoked at all—why, for instance, a dormant wish or fear-neurogram becomes activated into a subconscious wish or fear, or having become activated, the mechanism by which such a wish or fear manifests itself in this phenomenon or that—or to examine even any large number of the various phenomena which are provoked by subconscious processes, and it is not my intention to do so. Such problems belong to special psychology and special pathology. Of recent years, for instance, certain schools of psychology, and in particular the Freudian school, have attempted to establish particular mechanisms by which subconscious processes come into being and express themselves. We are engaged in the preliminary and fundamental task of establishing, if possible, certain basic principles which any mechanism must make use of, and, as a deeper-lying theoretical question, the nature of such processes.

The subconscious now belongs to popular speech and it is the fashion of the day to speak of it glibly enough, but I fear it means very little to the average person. It is involved in vagueness if not mystery. Yet as a necessary induction from observed facts it has a very precise and concrete meaning

devoid of abtruseness, just as the other has a precise and concrete meaning. Although subconscious processes were originally postulated on theoretical grounds, the theory is fortunately open to experimental tests so that it is capable of being placed on an experimental basis like other concepts of science. It is possible to artificially create such processes and study their phenomena; that is to say, the modes in which they manifest their activities, their influence upon conscious and bodily processes. We can study their effect in inhibiting and distorting thought, in determining it in this or that direction, in creating hallucinatory, emotional, amnesic, and other mental phenomena, in inducing physiological disturbances of motion, sensation, of the viscera, etc. We can also study the capabilities and limitations of the subconscious in carrying on intelligent operations below the threshold of consciousness. Again, we can investigate the phenomena of this kind as met with in the course of clinical observations, and by technical methods of research explore the subconscious and thus explicitly reveal the process underlying and inducing the phenomena. By such methods of investigation the subconscious has been removed from the field of speculative psychology, and placed in the field of experimental research. We have thus been enabled to postulate a subconscious process as a *definite concrete process producing very definite phenomena.* These processes and their phenomena have become a field of study in themselves and, from my point of view,

the determination of the laws of the subconscious should be approached by such experimental and technical methods of research. After its various modes of activity, its capabilities and limitations have been in this way established, its laws can then be applied to the solution of conditions surrounding particular problems. Though we can determine the actuality of a particular subconscious process this does not mean that we can determine all the components of that process; we may be able to determine many or perhaps none of these: just as among the constituents of a crowd we may discern an active, turbulent group creating a disturbance, though we may not be able to recognize all the components of the group or the scattered individuals acting in conjunction with it. Nor may we be able to determine the intrinsic nature of a subconscious process—whether it is a conscious or unconscious one, but only the actuality of the process, the conditions of its activity, and the phenomena which it induces.

A subconscious process may be provisionally defined as one of which the personality is unaware, which, therefore, is outside the personal consciousness, and which is a factor in the determination of conscious and bodily phenomena, or produces effects analogous to those which might be directly or indirectly induced by consciousness. It would be out of the question at this time to enter into an exposition of the larger subject—the multiform phenomena of the subconscious, but as its processes are

fundamental to an understanding of many phenomena with which we shall have to deal, we should have a clear understanding of the grounds on which such processes are postulated as specific, concrete occurrences. The classical demonstration of subconscious occurrences makes use of certain phenomena of hysteria, particularly those of subconscious personalities and artificial "automatic" phenomena like automatic writing. The epoch-making researches of Janet * on hysterics and almost coincidently with him of Edmund Gurney on hypnotics very clearly established the fact that these phenomena are the manifestations of *dissociated* processes outside of and independent of the personal consciousness. Among the phenomena, for example, are motor activities of various kinds such as ordinarily are or may be induced by conscious intelligence. As the individual, owing to anesthesia, may be entirely unaware even that he has performed any such act, the process that performed it must be one that is subconscious.

The intrinsic nature of subconscious processes.—Janet further brought forward indisputable evidence showing that in hysteria these subconscious processes are real coconscious processes. It is only another mode of expressing this to say that there is a dissociation or division of consciousness in consequence of which certain ideas do not enter the con-

* Pierre Janet: L'automatisme psychologique, Paris, 1889, and numerous other works.

tent of the personal consciousness of the individual. It is possible, as he was the first to show, to communicate with and, in hypnotic and other dissociated states, recover memories of these split-off ideas of which the individual is unaware, and thereby establish the principle that these ideas are the subconscious process which induces the hysterical phenomena. (These phenomena are of a great many kinds and include sensory as well as motor automatisms, inhibition of thought and will, deliria, visceral, emotional, and other disturbances of mind and body.) The hysterical subconscious process is thus determined to be a very specific concrete *coconscious* process, one, the elements of which are memories and other particular ideas. This type of subconscious process, therefore, may be regarded as the activated residua of antecedent experiences with or without secondary elaboration. All subsequent investigations during the past twenty-five years have served but to confirm the accuracy of Janet's observations and conclusions. It would be out of the question at this time, before coconscious ideas have been systematically studied, to attempt to present the evidence on which this interpretation of certain subconscious phenomena rests. This will be done in other lectures.* I will simply say that this evidence for coconsciousness occurring in certain special conditions, artificial and pathological, and perhaps as a constituent of the normal content of consciousness, is of precisely the same character as

* Not included in this volume.

that for the occurrence of consciousness in any other individual but one's self. If we reject the evidence of hysterical phenomena, of that furnished by a coconscious personality, and by automatic script and speech, etc., we shall have to reject precisely similar evidence for consciousness in other people than ourselves.* The evidence is explicit and not implied.

A subconscious personality is a condition where complexes of subconscious processes have been constellated into a personal system, manifesting a secondary system of self-consciousness endowed with volition, intelligence, etc. Such a subconscious personality is capable of communicating with the experimenter and describing its own mental processes. It can, after repression of the primary personality, become the sole personality for the time being, and then remember its previous subconscious life, as we all remember our past conscious life, and can give full and explicit information regarding the nature of the subconscious process. By making use of the testimony of a subconscious personality and its various manifestations, we can not only establish the

* Cf. Prince: The Dissociation; also A Symposium on the Subconscious, *Journal of Abnormal Psychology,* June-July, 1907; Experiments to Determine Coconscious (Subconscious) Ideation, *Journal of Abnormal Psychology,* April-May, 1908; Experiments in Psycho-Galvanic Reactions from Coconscious (Subconscious) Ideas in a Case of Multiple Personality, *Journal of Abnormal Psychology,* June-July, 1908; The Subconscious [*Rapports et Comptes Rendus, 6me Congrès International de Psychologie,* 1909]; also, My Life as a Dissociated Personality, by B. C. A., *Journal of Abnormal Psychology,* October-November, 1908.

actuality of subconscious processes and their intrinsic nature in these conditions, but by prearrangement with this personality predetermine any particular process we desire and study the modes in which it influences conscious thought and conduct. For instance, we can prescribe a conflict between the subconsciousness and the personal consciousness, between a subconscious wish and a conscious wish, or volition, and observe the resultant mental and physical behavior, which may be inhibition of thought, hallucinations, amnesia, motor phenomena, etc. The possibilities and limitations of subconscious influences can in this way be experimentally studied. Subconscious personalities, therefore, afford a valuable means for studying the mechanism of the mind.*

The conclusion, then, seems compulsory that the subconscious processes in many conditions, particularly those that are artificially induced and those that are pathological, are *coconscious* processes.

There are other phenomena, however, which require the postulation of a subconscious process, yet which, when the subconscious is searched by the

* The value of subconscious personalities for this purpose has been overlooked, owing, I suppose, to such conditions being unusual and bizarre, and the assumption that they have little in common with ordinary subconscious processes. But it ought to be obvious that *in principle* it makes little difference whether a subconscious system is constellated into a large self-conscious system called a personality, or whether it is restricted to a system limited to a few particular coconscious ideas. In the former case the possibilities of its interfering with the personal consciousness may be more extended and more influential, that is all.

same methods made use of in hysterical phenomena, do not reveal explicit evidence of coconsciousness. An analysis of the subconscious revelations as well as the phenomena themselves seems to favor the interpretation that in some cases the underlying process is in part and in others wholly *unconscious*. The only ground for the interpretation that all subconscious processes are wholly conscious is the assumption that, as some are conscious, all must be. This is as unsound as the assumption that, because at the other end of the scale some complex actions (e. g., those performed by decerebrated animals) are intelligent and yet performed by processes necessarily unconscious, therefore all actions not under the guidance of the personal consciousness are performed by unconscious processes.

If some subconscious processes are unconscious they are equivalent to physiological processes such as, *ex hypothesi,* are correlated with all conscious processes and perhaps may be identified with them. In truth, they mean nothing more nor less than "unconscious cerebration."

We can say at once that considering the complexity and multiformity of psycho-physiological phenomena there would seem to be no *a priori* reason why all subconscious phenomena must be the same in respect to being either coconscious or unconscious; some may be the one and some the other. It is plainly a matter of interpretation of the facts and there still exists some difference of opinion. The problem is a very difficult one to settle by methods

at present available; yet it can only be settled by the same methods, in principle, that we depend upon to determine the reality of a personal consciousness in other persons than ourselves. No amount of *a priori* argument will suffice. Perhaps some day a criterion of a conscious state of which the individual is unaware will be found, just as the psycho-galvanic phenomenon is possibly a criterion of an effective state. Any conclusions which we reach at present should be regarded as provisional.*

SPECIAL PROBLEMS OF THE SUBCONSCIOUS

As one of our foremost psychologists has said, the subconscious is not only the most important problem of psychology, it is *the* problem. But of

* Of course, from a practical (clinical) point of view, it is of no consequence whether given phenomena are induced by coconscious or unconscious processes; the individual is not aware of either. Let me answer, however, a strange objection that has been made to such an inquiry. It has been objected that as it makes no practical difference whether the subconscious process, which induces a given phenomenon, is coconscious or unconscious, and as in many given cases it is difficult or impossible to determine the question, therefore, that such inquiries are useless. Plainly such an objection only concerns applied science, not science itself. It concerns only the practicing physician who deals solely with reactions. Likewise it makes no difference to the practicing chemist whether some atoms are positive and some negative ions, and whether on further analysis they are systems of electrons, and whether, again, electrons are points of electricity. The practical chemist deals only with reactions. Such questions, however, having to do with the ultimate nature of matter are of the highest interest to science. Likewise the nature of subconscious processes is of the highest interest to psychological science.

course it involves many problems of practical and theoretical interest. Among them are:

First of all the evidential justification of the postulation of subconscious processes in general.

Second; the intrinsic nature of such processes. In other words and more specifically, whether the neurograms of experiences after becoming active subconscious *processes* continue to be devoid of consciousness, nothing but a brain process,—i. e., unconscious; or whether in becoming activated they become conscious (monism), or acquire conscious equivalents (parallelism), notwithstanding they are outside (dissociated from) the content of the personal consciousness.

Third; the kind and complexity of functions a subconscious process can perform. Can it perform the same functions as are ordinarily performed by conscious *intelligence* (as we commonly understand that term); that is to say memory, perception, reasoning, imagination, volition, affectivity, etc.? If so, to what extent?

Fourth; are the processes of the conscious mind only a part of a larger mechanism of which a submerged part is a subconscious process?

Fifth; to what extent can and do subconscious processes determine the processes of the conscious mind and bodily behavior in normal and abnormal conditions?

These are some of the problems of the subconscious which for the most part have been only incompletely investigated.

It is, of course, beyond the scope of these introductory lectures to discuss with any completeness the evidence at hand bearing upon these problems or to even touch upon many of the points involved. We may, however, study more deeply than we have done some of the phenomena with which we have become familiar with a view to seeing what light they throw upon some of these problems, particularly the first three.

1, 2, and 3; Actuality, Intrinsic Nature and Intelligence of Subconscious Processes.—As to the first question, whether subconscious processes can be established in principle as a sound induction from experimental and clinical facts and not merely as a hypothetical concept, I have already pointed out that many manifestations of conservation already cited in the exposition of the theory of memory are of equal evidential value for the *actuality* of such processes. Let us now consider them in more detail from the point of view, more particularly, of the second and third questions—the *intrinsic nature* (whether coconscious or unconscious) and *intelligence* of the underlying processes at work. In any given case however the actuality of the subconscious process must always be first demonstrated.

If we leave aside those conditions (hysteria, coconscious personalities) wherein specific memory of a coconscious process can be recovered, or such a process can be directly communicated with (automatic writing and speech), the conditions required

for the valid postulation of a subconscious process underlying any given phenomenon are: first, that the causal factor shall be positively *known;* second, that it shall be an antecedent experience; and, third, that it shall not be in the content of consciousness at the moment of the occurrence of the phenomenon. If the causal factor and the phenomenon are both known, then the only unknown factor to be determined is the process, if any, *intervening between the two.* If this is not in consciousness, a subconscious process must be postulated.

Obviously, if the known causal factor is *immediately* related to the caused phenomenon, the subconscious process must be the causal factor itself. But if the known causal factor is *not immediately* related to the caused phenomenon, there must be an intervening process which must be subconscious, perhaps consisting of a succession of processes eventuating in the final phenomenon. For instance, if the causal factor is a hypnotic suggestion (for which there is afterwards amnesia) that the subject when awake shall automatically raise the right arm, a subconscious process which is the memory of that suggestion immediately provokes the automatic phenomenon. If, however, the suggestion is that of a series of automatic actions involving complicated behavior, or if it is a mathematical calculation, the intervening process which provokes the end result must not only be subconscious but must be a more or less complicated succession of processes.

When, on the other hand, the causal factor is not

known but only inferred with greater or less probability, the justification of the postulation of a subconscious process may be invalidated by the uncertainty of the inference. If for example a person raises his right hand or has a number come into his head without obvious cause, any *inferred* antecedent experience as the causal factor must be open to more or less doubt, and, therefore, a subconscious process cannot be postulated with certainty. This uncertainty seriously affects the validity of conclusions drawn from clinical phenomena where the antecedent experience as well as a subconscious process must be inferred and perhaps even a matter of guesswork.

Let us examine then, a few selected phenomena where the causal factor in the process is a known antecedent conscious experience, one which can be logically related to the succeeding phenomenon only by the postulation of an intervening process of some kind. By an analysis of the antecedent experience and the caused phenomenon into their constituent elements we shall often be able to infer the functional characteristics of this intervening process. Then, if the subject is a favorable one, by the use of hypnotic and other methods we may be able to obtain an insight into the intrinsic nature of the subconscious process and determine how far it is conscious and how far unconscious. Necessarily the most available phenomena are those experimentally induced. We can arrange beforehand the causal experience and the phenomenon which it

is to determine—an hallucination, a motor automatism, a dream, a conscious process of thought, or the product of an intellectual operation. The number of observations we shall examine might be made much larger and the types more varied. Those I have selected have such close analogies with certain experiences of everyday and pathological life that what is found to be true of them will afford valuable fundamentals in the elucidation of these latter experiences.*

Subconscious processes in which the causal factor was antecedently known.—I. The evidential value of *post-hypnotic phenomena* ranks perhaps in the first place for our purpose as the conditions under which they occur are largely under control. Among these showing subconscious processes of a high order of intelligence are:

(a) The well-known subconscious mathematical calculations which I cited in a previous lecture (p. 96). There is no possible explanation of this phenomenon except that the calculation was a subconscious process and done either coconsciously or unconsciously. That it may be done, in some cases, by coconscious processes of which the subject is unaware is substantiated by the evidence.† In

* I have passed over the classical hysterical phenomena as they open a very large subject which needs a special treatment by itself. The subconscious processes underlying them, so far as they have been determined, are, as I have explained, admittedly coconscious, though some may be in part unconscious. They are too complicated to be entered into here.

† Prince: Experiments to Determine Coconscious (Subconscious) Ideation, *Journal of Abnormal Psychology*, April-May, 1908.

other cases this does not appear to be wholly the case if we can rely upon hypnotic memories. We will examine this process in connection with:

(b) A second class of post-hypnotic phenomena, namely, those of suggested actions carried out by the subject more or less automatically, in a sort of absent-minded way, without his being aware of what he is doing. The subject is directed in hypnosis to perform such or such an action after being awakened. Sometimes the suggested action is performed consciously, the suggested ideas with their impulses arising in his mind, but without his knowing why. In other instances, however, he performs the action automatically without being consciously aware at the moment that he is doing it, his attention being directed toward something else. Such actions must be performed by some kind of subconscious processes instigated by the ideas suggested in hypnosis.

Now hypnotic and other technically evoked memories sometimes reveal the conscious content of the processes involved in both classes of phenomena. For instance: two intelligent subjects, who have been the object of extensive observations on this point, are able to recall in hypnosis the previous occurrence of coconscious ideas of a peculiar character. The description of these ideas has been very precise and has carried a conviction, I believe, to all those who have had an opportunity to be present at these observations that these recollections were

true memories and not fabrications.* The statements of these subjects is that in their own cases, under certain conditions of everyday life, coconscious ideas *of which the principal consciousness is not aware* emerge into the subconscious, persist for a longer or shorter time, and then subside to be replaced by others. So long as the conditions of their occurrence continue these coconscious ideas keep coming and going, interchanging with one another. Sometimes these ideas take the form of images, or what is described as visual "pictures." When the conditions are those of the subconscious solution of a mathematical calculation then the same "pictures" occur and take the form of the figures involved in the calculation; the figures come and go, apparently add, subtract, and multiply themselves until the final result appears in figures. An example will make this clear.

While the subject was in hypnosis the problem was given to add 458 and 367, the calculation to be

* Among these I might mention the names of a dozen or more well-known psychologists and physicians of experience and repute who have observed one or both of these cases. Through the kindness of Dr. G. A. Waterman I have had an opportunity to investigate a third case, one of his patients, who described similar coconscious "pictures" accompanying certain impulsive conscious acts. The pictures, when of persons, were described as "life size," and were likened to those of a cinematograph. Also, as with one of my cases, suggested post-hypnotic actions were accompanied by such coconscious pictures representing in successive stages the act to be performed. An analysis of both the impulsive and the suggested phenomena seemed to clearly show that the pictures emerged from a deeper lying submerged process induced by the residuum of a dream and of the suggestion, respectively.

done *subconsciously* after she was awake. The problem was successfully accomplished in the usual way. The mode in which the calculation was effected was then investigated with the following result: In what may be termed for convenience the secondary consciousness, i. e., the subconsciousness, the numbers 458 and 367 appeared as distinct visualizations. These numbers were placed one over the other, "with a line underneath them such as one makes in adding. The visualization kept coming and going; sometimes the line was crooked and sometimes it was straight. The secondary consciousness did not do the sum at once, but by piecemeal. It took a long time before it was completed." The sum was not apparently done as soon as one would do it when awake, by volitional calculation, "but rather the figures *added themselves,* in a curious sort of way. The numbers were visualized and the visualization kept coming and going and the columns at different times added themselves, as it seemed, the result appearing at the bottom." In another problem (453 to be multiplied by 6) the process was described as follows: The numbers were visualized in a line, thus, 453 x 6. Then the 6 arranged itself under the 453. The numbers kept coming and going the same as before. Sometimes, however, they added themselves, and sometimes the 6 subtracted itself from the larger number. Finally, however, the result was obtained. As in the first problem, the numbers kept coming and going in the secondary consciousness until the problem was

solved and then they ceased to appear. It is to be understood, of course, that the *principal or personal consciousness was not aware of these coconscious figures, or even that any calculation was being or to be performed.*

In suggested post-hypnotic actions, the pictures that come and go correspond to and represent the details of the action as it is carried out. Each detail is preceded or accompanied by its coconscious image or picture. Likewise, when somatic phenomena have followed dreams, pictures representing certain elements of the dream have appeared as secondary conscious states. When the subject has been disturbed by some unsolved moral or social problem (not suggested) the pictures have been symbolic representations of the disturbing doubts and scruples.*

One of these two subjects, while in hypnosis and able to recollect what goes on in the secondary consciousness, thus describes the coconscious process during the *spontaneous* subconscious solution of problems. "When a problem on which my waking self is engaged remains unsettled, it is still kept in mind by the secondary consciousness even though put aside by my waking self. My secondary consciousness often helps me to solve problems which my waking consciousness has found difficulty in doing. But it is not my secondary consciousness

* Cf. Lecture IV. These coconscious pictures are so varied and occur in so many relations that they need to be studied by themselves.

that accomplishes the final solution itself, but it helps in the following way: Suppose, for instance, I am trying to translate a difficult passage in Virgil. I work at it for some time and am puzzled. Finally, unable to do it, I put it aside, leaving it unsolved. I decide that it is not worth bothering about and so put it out of my mind. But it is a mistake to say you put it *out* of your mind. What you do is, you put it *into* your mind; that is to say, you don't put it out of your mind if the problem remains unsolved and unsettled. By putting it *into* your mind I mean that, although the waking consciousness may have put it aside, the problem still remains in the secondary consciousness. In the example I used the memory of the passage from Virgil would be retained persistently by my secondary consciousness. Then from time to time a whole lot of fragmentary memories and thoughts connected with the passage would arise in this consciousness. Some of these thoughts, perhaps, would be memories of the rules of grammar, or different meanings of words in the passage, in fact, anything I had read, or thought, or experienced in connection with the problem. These would not be logical, connected thoughts, and they would not solve the problem. My secondary consciousness does not actually do this, i. e., in the example taken, translate the passage. The translation is not effected here. But later when my waking consciousness thinks of the problem again, these fragmentary thoughts of my

secondary consciousness arise in my mind, and with this information I complete the translation. The actual translation is put together by my waking consciousness.* I am not conscious of the fact that these fragments of knowledge existed previously in my secondary consciousness. I do not remember a problem ever to have been solved by the secondary consciousness.† It is always solved by the waking self, although the material for solving it may come from the secondary. When my waking consciousness solves it in this way, the solution seems to come in a miraculous sort of way, sometimes as if it came to me from somewhere else than my own

* This, of course, so far as she could determine from the data of memory. The more correct interpretation probably is that the thoughts of the "secondary consciousness" were supplied by a still deeper underlying subconscious process, certain elements of which emerged as dissociated conscious states (not in the focus of attention). This same process probably was the real agent in doing the actual translation, and later thrust the necessary data into awareness in such fashion that the translation seemed to be performed consciously. If all the required data is supplied to consciousness the problem is thereby done.

† The subject here, of course, refers not to experimental but to spontaneous solutions. When experimentally performed the whole problem was solved subconsciously. Furthermore, a memory of a detail of this kind of remote experiences obviously would not be reliable, but only immediately after an experience. In fact, spontaneous solutions sometimes occurred entirely subconsciously. (Cf. Lecture VII.) In the experimental calculation experiments the solution is made subconsciously in accordance with the prescribed conditions of the experiment. In other observations on this subject the coconscious pictures represented past experiences of the subject, much as do crystal visions, and suggest that these past experiences were functioning unconsciously.

mind. I have sometimes thought, in consequence, that I had solved it in my sleep." *

A series of observations conducted with a fourth subject (O. N.) gave the following results, briefly summarized. (This subject, like the others, is practiced in introspection and can differentiate her memories with precision.) She distinguishes "two strata" in her mental processes (an upper and lower). The "upper stratum" consists of the thoughts in the focus of attention. The lower (also called the background of her mind) consists of the perceptions and thoughts which are not in the focus. This stratum, of course, corresponds with what is commonly recognized as the fringe of consciousness, and, as is usual, when her attention is directed elsewhere she is not aware of it. She can, however, bring this fringe within the field of attention and then she becomes aware of, or rather remembers, its content during the preceding moment. To be able to do this is nothing out of the ordinary, but what is unusual is this: by a trick of abstraction which she has long practiced, she can bring the memory of the fringe or stratum into the full light of awareness and then it is discovered that it has been exceedingly rich in thoughts, far richer than ordinary attention would show and a fringe is supposed to be. It is indeed a veritable coconsciousness in which there goes on a secondary stream of thoughts often of an entirely different character

* Prince: Some of the Present Problems of Abnormal Psychology, Congress of Arts and Sciences, St. Louis, 1904, V. 5, p. 770.

and with different affects from those of the upper stratum. It is common for thoughts which she *has resolutely put out of her mind as intolerable or unacceptable, or problems which have not been solved, to continue functioning in the lower stratum without entering awareness.** She can, however, at any time become aware of them by the trick of abstraction referred to, and sometimes they emerge apparently spontaneously and suddenly† replace the "upper stratum." In hypnosis also the content of the lower stratum can be distinctly recalled.

Now the point I have been coming to is, the subject has acquired the habit of postponing the decision of many everyday problems and giving them, as a matter of convenience, to this second stratum or fringe to solve. She puts one aside, that is out of (or *into*) her mind and it goes into this stratum. Then, later, when the time for action comes, she

* Practically similar conditions I have found in B. C. A., and Miss B., though described by the subjects in different phraseology.

† For instance, to take a sensational example, on one occasion in the midst of hilarity while singing, laughing, etc., she suddenly became depressed and burst into tears. What happened was this: It was a sorrowful anniversary, and in the "lower stratum" sad memories had been recurring during the period of hilarity. These memories had come into consciousness early in the morning, but she had resolutely put them out of her mind. They had, however, kept recurring in the lower stratum, and suddenly emerged into the upper stratum of consciousness with the startling effect described. More commonly, however, the emergence of the lower stratum is simply a shifting play of thought. It is interesting to note that censored thoughts and temptations are apt to go into the lower stratum and here with their affects continue at play. *These sometimes reappear as dreams.*

voluntarily goes into abstraction, becomes aware of the subconscious thoughts of the second stratum and, lo and behold! the problem is found to be solved. If a plan of action, all the details are found arranged as if planned "consciously." If asked a moment before what plans had been decided upon and decision reached she would have been obliged in her conscious ignorance to reply, "I don't know." *

An analysis of these different observations shows,

* The validity of the evidence of memory as applied to subconscious processes needs to be carefully weighed. It is a question of method, and if the method is fallacious all conclusions fall to the ground. In the sciences of normal psychology and psychiatry and psychopathology, the data given by memory are and necessarily must be relied upon to furnish a knowledge of the content of mental processes and the mental symptoms, and all methods of psychological analysis are based on the data of memory. Without such data there could be no such sciences. As a matter of experience the method is found to be reliable when properly checked by multiple observations. If by special methods of technique mental processes, which do not enter the awareness of the moment, are later brought into consciousness as data of memory, are these data *per contra* to be rejected as hallucinatory? This is what their rejection would mean. Now, as a fact, there are phenomena, like coconscious personalities, which compel the postulation of coconscious processes. If this is the case, if there are coconscious processes which do not enter awareness, it would be the strangest thing if there were not conditions of the personality in which a memory of these processes could be obtained. This fact would have to be explained. The bringing of coconscious processes into consciousness as data of memory does not seem therefore to be anything *a priori* improbable and there would seem to be no reason why the memory of them should be more unreliable than that of conscious processes in the forms of attention. Indeed, if the fringe of consciousness be regarded as coconscious, it is an every-day act common to everybody. Such data necessarily should be checked up by multiple observations.

first, that the post-hypnotic phenomena—calculations (a) and actions (b)—were performed by a subconscious process. Of this there can be no manner of doubt, even if the subsequent hypnotic memories of the process be rejected as untrustworthy. The phenomenon—the answer to the mathematical problem in the one case and the motor acts in the other—is so logically related to the suggestion, and can be predicted with such certainty, that only a causal relation can be admitted.

Second, in the calculation phenomena the process is clearly of an intellectual character requiring *reasoning* and the coöperation of mathematical *memory.* (Reasoning is more conspicuous when the problem is more complicated, as in the calculation of the number of seconds intervening between, say, twenty-two minutes past eleven and seventeen minutes past three o'clock.)* The phenomenon is the solution of a problem.

The final phenomenon was not *immediately* related to the suggested idea. It was the final result of a quite long series of logical processes of a more or less complex character occurring over a period of time as in conscious calculation. *Conation* (volition?) would seem also to be essential to carry the suggested idea to fulfilment. *Subconscious cognition* would seem also to be required. There must have been an intelligent appreciation of what the

* For examples of this kind, see Prince, Experiments to Determine Coconscious Ideation, *Journal of Abnormal Psychology,* April-May, 1908.

problem was and as soon as the solution was accomplished the process stopped. Random figuring did not continue.

In the post-hypnotic motor acts conation is obvious. Here too there is a series of subconscious processes covering a period of time and carrying out a purpose. The suggested causal idea did not include the acts necessary for the fulfillment of the idea. Each step was adapted to an end, ceased as soon as it accomplished that end, and was followed by another in logical sequence, the whole taking place as if performed by an intelligence. Reasoning may or may not be involved according to the complexity of the actions.

Third; *the coconscious figures in the calculation experiments do not constitute the whole of the process.* They would seem to be the product of some deeper underlying process. The figures "kept coming and going" and seemed to "add themselves." There was no conscious process that related the figures to one another and determined whether the problem was one of addition or multiplication—as is the case when we do a calculation consciously; that is to say, of course, if the hypnotic personality remembered the whole of the conscious calculation. It was more as if there was an underlying unconscious process which did the calculation, certain final results of which appeared as dissociated states of consciousness, i. e., figures which did not enter the personal consciousness. The process reminds us of the printing of visible letters by the concealed

works of a typewriter; or of visible letters of an electrically illuminated sign appearing and disappearing according as the concealed mechanism is worked. This interpretation is in entire accord with the spontaneous occurrence of the coconscious images during the everyday life of these subjects. These images were pictorial representations of antecedent thoughts and seemed to be the products or elements of these thoughts apparently functioning as underlying unconscious processes. Likewise, in post-hypnotic suggested actions, I have not been able to obtain memories of coconscious thoughts directing the actions, but only the images described. These behave as if they were the product of another underlying process determining the action. Inferences of this sort are as compulsory as the inference that the illumination of a sensitive plate observed in the study of radio-activity must be due to the bombardment of the plate by invisible particles emitted by the radio-active substance. These particles and the process which ejects them can only be inferred from the effects which they produce. So, in the above observations, it would seem as if the coconscious figures, and other images involved, must be ejected as conscious phenomena by an underlying process. There is no explicit evidence that this is conscious.

I said advisedly, a moment ago, "if the hypnotic personality remembered the whole of the conscious calculation," for, as a matter of fact, we find, when we examine several different hypnotic states in the

same subject, that their memories for coconscious ideas are not coextensive, one (or more) being fuller than another. Indeed in certain states there may not be any such memories at all. It is necessary, therefore, to obtain by hypnosis a degree of dissociation which will allow the complete memories of this kind to be evoked. In the subjects I made use of this procedure was followed. Theoretically it might be held that, no matter how complete the memories evoked in the various states, some other state might possibly be obtained in which still more complete memory would be manifested. Theoretically this is true and all conclusions are subject to this criticism. Practically, however, I found, when making these investigations, that I seemed to have come to the limit of such possibilities, for, obtain as I would new dissociated arrangements of personality, after a certain point no additional memories could be evoked. There is still another possibility that there may be coconscious processes for which no memories can be evoked by any method or in any state.

II. *Artificially induced visual hallucinations* with which we have already become familiar can, as we have seen, only be interpreted as the product of subconscious processes. If only because of the important part that hallucinations play in insanity and other pathological states and of the frequency with which they occur in normal people (mystics and others), the characteristics of the subconscious process are well worth closer study. What is found

to be true of the experimental type is probably true of the spontaneous variety whether occurring in pathological or normal conditions. Indeed, as we shall see, spontaneous hallucinations have the same characteristics. We have considered them thus far only from two points of view, viz. (1) as evidence of conservation of forgotten experiences, and (2) as evidence for specific residua of such experiences functioning as subconscious processes. Now, artificial visual hallucinations, like the spontaneous ones, may be limited—relatively speaking—to what is apparently little more than an exact reproduction of an antecedent visual perception, e. g., a person or object. But, generally speaking, it is more than this and when analyzed will be found almost always to be the expression of a complicated process. For instance, take the relatively simple crystal vision, of the subject smoking a cigarette in a particular situation during hypnosis, which I have previously cited. (Lecture III.) As a matter of fact, the subject had no primary visual perceptions at the time of the original episode at all. She was in hypnosis, her eyes were closed, and she did not and could not see herself (particularly her own face) or the cigarette or her surroundings. And yet the vision pictured everything exactly as it had occurred in my presence, even to the expression of her features. Looking into the crystal the subject saw herself sitting in a particular place, enacting a series of movements, talking and smoking a cigarette with a peculiar smile and expression of enjoy-

ment on her face.* For this experience there was complete amnesia after waking from hypnosis and at the time of the vision.

Now consider further the facts and their implications. In the mechanism of the process eventuating in the visual phenomenon we obviously have two known factors: the antecedent causal factor—the hypnotic episode—and, after a time interval, the end result—the vision. As there was no conscious memory of the hypnotic episode the neurograms of the latter must have functioned subconsciously to have produced the vision. But what particular neurograms? As the subject's eyes had been closed in hypnosis, and, in any event, as she could not have seen her own face, there were at the time no *visual* perceptions of herself smoking a cigarette, and therefore the vision could not have been simply a reproduction of a visual experience. There were, however, tactual, gustatory, and other perceptions and ideas of self and environment, and these perceptions and ideas of course possessed *secondary visual images.*† The simplest mechanism would be that the neurograms of this complex of perception and ideas of self, etc., functioned subconsciously and their *secondary* visual images emerged into consciousness to be the vision. I give this as the simplest mechanism by which we can conceive of a visual representa-

* The Dissociation, pp. 55, 56.

† It is only necessary to close one's eyes, then grimace and move one's limbs to become conscious of these secondary images which picture each movement of the features, etc.

tion of an antecedent experience emerging out of a subconscious process.* There is a considerable body of data supporting this interpretation.

But the original experiences of the episode included more than the mere perceptions and movements of the subject. They included trains of thought and enjoyment of the cigarette smoking experience. All formed a complex of which the tactual and other perceptions of self were subordinate elements. At one moment, of course, one element, and, at another moment another element, had been in the focus of awareness, the others becoming shifted into the fringe *where at all times were secondary visual images of herself.* Did the subconscious process underlying the vision include the whole of this complex? As to this, one peculiarity of the vision has much significance. In behavior it acted after the manner of a cinematographic or "moving picture," and delineated each successive movement of the episode, as if a rapid series of photographs had been taken for reproduction. In

* The mechanism is probably not quite so simple as this, probably past visual perceptions of self and the environment took part, so that the vision was a fusion or composite of these older primary images and the secondary images. The principle of mechanism, however, would not be affected by this added element. Sidis (The Doctrine of Primary and Secondary Sensory Elements, *Psych. Rev.*, January-March, 1908) has maintained that all hallucinations are the emerging of the secondary images of previous perceptions. If, on the other hand, the vision be interpreted as something fabricated by the subconscious process—as must be the case with some hallucinations—then this process must have been much more complicated than memory. Something akin at least to constructive imagination and intelligence that translated the experiences into visual terms.

this manner even the emotional and changing play of the features of the vision-self, expressive of the previous thoughts and enjoyment, were depicted. Such a cinematographic series of visual images would seem to require a concurrent subconscious process to produce the successive changes in the hallucinatory images. As these changes apparently correspond from moment to moment with the changes that had occurred in the content of consciousness during the causal episode, it would also seem that the subconscious process was a reproduction in subconscious terms of substantially the whole original mental episode. This conclusion is fortified by the following additional facts: In many experiments of this kind, if the subject's face be watched during the visualization, it will be observed that *it shows the same play of features as is displayed by the vision face,** and the visualizer at the same moment *experiences the same emotion as is expressed by the features of the vision face,*† and sometimes knows "what her [my] vision self is thinking about." In other words, *in particular instances,* sometimes the feelings alone and sometimes both the thoughts and feelings expressed in pantomime in the hallucination arise at the same moment in consciousness. This would seem to indicate that the same processes which determined the mimetic play of features in the *hallucination* were determining at the same moment the same play in the

* That is to say, as described by the visualizer.

† Cf. The Dissociation, pp. 211-220.

features of the visualizer, and that these processes were a subconscious memory of substantially all the original perceptions and thoughts. That is to say, this memory in such cases remains sometimes entirely subconscious and sometimes emerges into consciousness. The hallucination is simply a projected visualization induced by what is taking place subconsciously in the subject's mind at the moment. Whether this shall remain entirely subconscious or shall emerge partially or wholly into consciousness depends upon psychological conditions peculiar to the subject.

That even when the thoughts of the causal experience emerge in consciousness along with the vision a portion of the functioning complex—e. g., the perceptual elements—may still remain submerged is shown by the following example: The vision, one of several of the same kind, portrayed in pantomime an elaborate nocturnal somnambulistic act. It represented the subject walking in her sleep with eyes closed; then sitting before the fire in profound and depressing thought; then joyously dancing; then writing letters, etc., and finally ascending the stairs, *unconsciously dropping one of the letters from her hand on the way,** and returning to bed. During the visualization the thoughts and feelings of the vision-self, even the contents of the letters, arose in

* At this point the subject watching the vision remarked, "I drop one of the letters, but I do not know I have done so." In other words, conscious of the content of the somnambulist's consciousness, the visualizer knows that there is no awareness of this act. The letter was afterward found by the servant on the stairs.

the mind of the visualizer whose features and tone of voice betrayed the feelings.

The point to be noted in this observation is that the *vision reproduced as a detail of the somnambulistic act the accidental dropping of a letter from the hand of the somnambulist who was unaware of the fact;* it reproduced what was not in conscious experience. How came it that an act for which there had been no awareness could appear in the vision? The only explanation is that originally in the somnambulistic state, as is so commonly observed in hypnotic somnambulism, there was a subconscious tactual perception (with secondary visual images?) of dropping the letter and now the memory of this antecedent perception, functioning subconsciously, induced this detail of the vision. The general conclusion then would seem to be justified that this hallucination was determined by a fairly large complex of antecedent somnambulistic experiences of which a part emerged as the hallucination and the thoughts of the somnambulist into consciousness, and a part—the tactual and other perceptions—remained submerged as the subconscious process. How much more may have been contained in this process the facts do not enable us to determine.

An examination, then, of even the more simple artificial hallucinations discloses that underlying them there is a residual process which is quite an extensive subconscious memory of antecedent thoughts, perceptions and affective experiences.

Whether this memory is only an unconscious functioning neurogram or whether it is also a coconscious memory, or partly both, cannot be determined from the data.* The bearing of these results upon the interpretation of *insane hallucinations* is obvious.

Our examination of subconscious processes in the two classes of phenomena thus far studied—post hypnotic phenomena and artificial hallucinations—permits the following general conclusions: First, there is positive evidence to show that in some instances, in their intrinsic nature, they are coconscious. In other instances, in the absence of such evidence, it is permissible to regard them as unconscious. Second, that in the quality of the functions performed they frequently exhibit that which is characteristic of Intelligence. This characteristic will be seen to be still more pronounced in the phenomena which we shall next study.

* Coconscious ideas may provoke hallucinations. (For examples consult "Hallucinations" in Index to The Dissociation.)

LECTURE VII

SUBCONSCIOUS INTELLIGENCE

(Continued)

III. *Subconscious intelligence underlying spontaneous hallucinations.*—Spontaneous hallucinations often offer opportunities to study subconscious processes exhibiting constructive intelligence. Although properly belonging to clinical phenomena, they often can be so clearly related to an antecedent experience as to allow us to determine the causal factor with the same exactness as in the experimental type, and, therefore, to infer the connecting subconscious link with equal probability. Some of these spontaneous visions indicate that the subconscious link must be of considerable complexity and equivalent to logical processes of reasoning, volition, and purposive intelligence. Sometimes the same subconscious processes which fabricate the vision determine also other processes of conscious thought and movements.

In illustration I may cite an incident in the life of Miss B., which I have previously described:

"Miss B., as a child, frequently had visions of the Madonna and Christ, and used to believe that she had actually seen them. It was her custom when in trouble, if it was only a matter of her school lessons, or something that she had lost, to resort to prayer. Then she would be apt to have a vision of Christ. The vision

never spoke, but sometimes made signs to her, and the expression of His face made her feel *that all was well.* After the vision passed she felt that her difficulties were removed, and if it was a bothersome lesson which she had been unable to understand it all became intelligible at once. Or, if it was something that she had lost, *she at once went to the spot where it was.*" . . . [For example, while under observation.] "Miss B. had lost a bank check and was much troubled concerning it. For five days she had made an unsuccessful hunt for it, systematically going through everything in her room. She remembered distinctly placing the check between the leaves of a book, when some one knocked at her door, and this was the last she saw of the check. She had become very much troubled about the matter, and in consequence, after going to bed that night she was unable to sleep, and rose several times to make a further hunt. Finally, at 3 o'clock in the morning, she went to bed and fell asleep. At 4 o'clock she woke with the consciousness of a presence in the room. She arose, and in a moment saw a vision of Christ, who did not speak, but smiled. She at once felt, as she used to, *that everything was well,* and that the vision foretold that she should find the check. All her anxiety left her at once. The figure retreated toward the bureau, but the thought flashed into her mind that the lost check was in the drawer of her desk. A search, however, showed that it was not there. She then walked automatically to the bureau, opened the top drawer, took out some stuff upon which she had been sewing, unfolded it, and there was the check along with one or two other papers.

"Neither Miss B. nor BII [hypnosis] has any memory of any specific thought which directed her to open the drawer and take out her sewing, nor of any conscious idea that the check was there. Rather, she did it, so far as her consciousness goes, automatically, as she used to do automatic writing."*

Further investigation revealed the fact that the money had been put away absent-mindedly and "un-

* The Dissociation, Appendix L, p. 548.

consciously''; in hypnosis the memory of this act was recovered.

In this observation we have two so-called automatic phenomena of different types—one a sensory automatism, the vision, the other a motor automatism or actions leading to the finding of the money. The motor acts being automatic were necessarily determined by subconscious processes and plainly required a knowledge of the hiding-place. This knowledge also plainly must have been conserved in the unconscious and now, in answer to her wish to find the lost money, acting as a subconscious process, fulfilled her wish in a practical way.

The vision was of Christ smiling. Seeing it the subject at once ''felt that all was well,'' and her anxiety vanished. It was plainly therefore a fabricated visual symbolism though one which she had frequently before experienced. It may be taken as a message sent by subconscious processes to her anxious consciousness and it is not too much to say had a purposive meaning, viz., to allay her anxiety. The question is, What was the causal factor which determined this symbolism? Logically it is a compulsory inference that the same conserved knowledge and subconscious processes, which eventuated in the motor automatisms, must have been the causal factor that determined the visual symbolism which carried the reassuring message to consciousness. This subconscious knowledge first allayed her anxiety and then proceeded to answer her problem of the whereabouts of the lost money.

More specifically, the primary causal factor was the preceding anxious wish to find the money; the resulting phenomena were the sensory and motor automatisms, allaying the anxiety and fulfilling the wish; *between the two as connecting links were subconscious processes of an intelligent, purposive, volitional character which first fabricated a visual symbolism as a message to consciousness and then made use of the conserved knowledge of her previous absent-minded act to solve her problem.* The subconscious process as a whole we thus see was of quite a complicated character. In this example it is impossible to determine from the data at hand whether the subconscious process was coconscious or unconscious.

The observation which I have elsewhere described as "an hallucination from the subconscious" * is an excellent example of an intelligent subconscious process indicative of judgment and purpose. The hallucination occurred in my presence as a result of an antecedent experience for which I was a moment before responsible. It was therefore of the nature of an experiment and the causal factor was known. The antecedent experience consisted of certain remarks and behavior of the subject while under the influence of an illusion during a dissociated state for which there was subsequent amnesia. The vision was of a friend whose face was sad, as of one who had been injured, and seemed to reproach

* The Dissociation, Chapter XXXI.

her. At the same moment she heard his voice which said, "How could you have betrayed me?" The hallucinatory words and the visual image were in no sense a reproduction of the causal, i. e., antecedent, experience. They were the expression of a *subconscious self-reproach* in consequence of that experience. This reproach connoted a subconscious belief or logical judgment, drawn from the experience, that she had broken a promise.* It was a subconscious reaction to a subconscious belief. I say both the reproach and the judgment were subconscious because, in the dissociated state, owing to the illusion, and in the normal after-state owing to the amnesia, she was entirely ignorant of having done anything that could be construed into breaking a promise. This interpretation of the episode must therefore have been entirely subconscious. The self-reproach emerged into consciousness but translated into visual and auditory hallucinations. These were plainly a condemnatory message sent from the subconscious to the personal consciousness and might aptly be termed "the prickings of a subconscious conscience." The primary causal factor was simply certain statements (conserved in the unconscious) made to me by the subject and for which afterwards there was amnesia. Intervening between this antecedent experience and the resulting hallucinatory phenomena a subconscious process must be postulated as a necessary connecting link.

* As a matter of fact, the judgment was erroneous, though a justifiable inference.

This process plainly involved memory and an intelligent judgment, an emotional reaction, and an expression of this judgment and reaction translated into hallucinatory phenomena. Apparently also a distinct purpose to upbraid the personality was manifested.

The accounts of *sudden religious conversion* are full of instances of hallucinations occurring at the time of the "crisis" and these—visions and voices—are often logical symbolisms of antecedent thoughts of the subject. By analogy with similar experimental phenomena we are compelled to interpret them in the same way and postulate these antecedent experiences as the causal factors. If this postulation is sound then the connecting subconscious link is often a quite complicated process of an intelligent character.

In one instance in which the occurrence was similar in principle to sudden religious conversion I was able to determine beyond question the causal antecedents of the hallucinatory phenomenon. I will not repeat the details here;* suffice it to say that the hallucination, consisting of a vision and an auditory message from the subject's deceased husband (see p. 40), answered the doubts and scruples with which the subject had been previously tormented. It was a logical answer calculated to allay distressing memories against which she had been fighting, "the old ideas of dissatisfaction with life, the feelings of injury, bitterness, and rebellion

* Cf. The Dissociation, 2d edition, p. 567.

against fate and the 'kicking against the pricks' which these memories evoked." It expressed previously entertained ideas which she had tried to accept but without success. The exposition of this answer in the *hallucinatory symbolism* required a subconscious process involving considerable reasoning. *The phenomenon as a whole was a message addressed to her own consciousness by subconscious processes to answer her doubts and anxious questionings of herself, and to settle the conflict going on in her mind.* The logical connection between the different elements of this hallucination and certain antecedent experiences which had harassed the subject are so close that there is no room left for doubting that these experiences were the causal factors. And so I might analyze a large number of spontaneous hallucinations wherein you would find the same evidence for subconscious processes *showing intelligent constructive imagination, reasoning, volition, and purposive effort,* and expressing themselves in automatisms which either solve a disturbing problem or carry to fruition a subconscious purpose.

I offer no excuse for multiplying these observations of hallucinatory phenomena, even at the expense of tedious repetition, for such studies give an insight into the mechanism of the hallucinations met with in the insanities and other pathological states. They offer, too, an insight into the basic process involved in dreams as these are a type of hallucinatory phenomena. It is by a study of hallu-

cinations experimentally created, and others where we are in a position to know the causal factors, that we can learn the mechanisms underlying similar phenomena occurring in normal pathological conditions. As a rule in the latter conditions it is difficult to determine beyond question the true causal factors and, therefore, the particular subconscious processes involved. Such phenomena as I have presented justify the conclusion of the "new psychology" that the *hallucinations of the insane* are not haphazard affairs but the resultant of subconscious processes evoked by antecedent experiences. In conclusion, then, we may say that *in artificial hallucinations as experimentally conducted, and in certain spontaneous hallucinations, we have two known factors; the causal factor* (*the antecedent experience*) *and the hallucinatory phenomenon—the effect. Intervening between the two is an inferred subconscious process of considerable complexity which is required to explain the causal connection.* With the exact mechanism of hallucinatory phenomena we are not at present concerned, but only with the evidence of the actuality of a subconscious process, of its character as an intelligence, and with its intrinsic nature.

As to the last problem it is plain that further investigations are required and that the methods at present at our disposal for its solution leave much to be desired. All things considered a conservative summing up would be that the subconscious process may be both coconscious and unconscious.

IV. *Subconscious intelligence underlying dreams.* As is well known, Freud advanced the theory, now well fortified by numerous observations of others, that underlying a dream is a subconscious process which fabricates the conscious dream. According to Freud and his followers this subconscious process is always an antecedent wish and the dream is an imaginary fulfillment of that wish. This part of the theory (as well as the universality of an underlying process) is decidedly questionable. My own observations lead me to believe that a dream may be also the expression of antecedent doubts, scruples, anxieties, etc., or may be an answer to an unsolved problem. We need not concern ourselves with this particular question here. I refer to it simply to point out that its correct solution depends upon the correct determination of the true causal factor which is necessarily antecedently unknown and must be inferred. It is inferred or selected from the associated memories evoked by the so-called method of analysis. Hence it must be always an element open to greater or less doubt. *Dreams are a type of hallucinatory phenomena* and therefore we should expect that their mechanism would correspond more or less closely with that of other hallucinatory phenomena.

With the object in view of determining whether a dream could be produced *experimentally* and brought within the category of phenomena where the causal factor was antecedently known, and thus determine the actuality of a subconscious process as

a necessary intervening link between the two, I made the following experiment. It should be noted that a wish *fulfilment* necessarily means a dream content so far different in form from the content of the *wish itself* that the postulation of a connecting link, conscious or subconscious, is required. I also sought, if a subconscious process could be postulated, to discover how elaborate and what sort of a work of constructive imagination a subconscious wish could evolve.

To a suitable subject while in a deep hypnotic trance state I gave a suggestion in the form of a wish to be worked out to fulfilment in a dream. It so happened that this subject was going through a period of stress and strain for which she sought relief. I also knew that she had a very strong desire to do a good piece of original psychological work and had advised her to take up the work as a solution of her difficulties. So, taking advantage of this desire, I impressed upon her, for the purpose of emphasizing the impulsive force of the desire, that she now had the longed-for opportunity as the culmination of her previous years of training to do the work. I then gave her the following suggestion: "You want to do a good piece of original work and your dream to-night will be the fulfillment of the wish." No hint as to what form the dream fulfilment should take was given, nor had she any knowledge before being put into the trance state that I intended to make an experiment.

It is interesting to note how the dream has a

logical form which is unfolded as an argument. This itself is an allegorical transcript of the reasons previously suggested to her for the particular solution of her problem.

The dream was a long one and into it were logically introduced as a part of the argument the actual distressing circumstances for the relief of which I had advised taking up the piece of psychological work as an outlet to her feelings and solution of her problem of life. I will give in detail only so much of the dream as contains the wish fulfilment (which became also a part of the dream argument), summarizing the remainder. The dream begins with an allegorical description of the great task involved in the study of psychology by all the workers of the world. The science of psychology is symbolized by a temple. "I dreamed I was where they were building a great temple or cathedral; an enormous place covering many acres of ground. Hundreds of men were building. Some were building spires, some were building foundations, and some were tearing down what they had built, some parts had fallen down of themselves. I was wandering around looking on." Then she proceeds to help one of the builders who was building a particular part of the temple by bringing him material in the form of stones. This she had actually done in real life, contributing much psychological material out of her own experiences. Many of these experiences had been very intimate ones from her inner life and had involved much suffering; hence the stones which

she contributed in her dream were big and heavy and were beyond her strength to carry, so that she could only roll them,—and some were sharp and made her hands bleed, so that her contribution involved much suffering. This part of the dream was not only a prelude to the suggested wish fulfilment but, as interpreted, contained a wish fulfilment in itself.

Then there was interjected an allegorical but very accurate description of the distressing circumstances to which I have referred and for which, as a problem of life, the suggested work was advised as a solution. Then logically followed the wish fulfilment and solution. She heard the voice of the builder whom she had been helping say to her, " 'Now, here are all the materials and you must build a temple of your own,' and I [she] said, 'I cannot,' and he said, 'you can, and I will help you.' So I began to build the stones I had taken him. It was hard work, but I kept on, and a most beautiful temple grew up. . . . All the stones were very brilliant in color, but each one was stained with a drop of blood that came from a wound in my heart. And the temple grew up; and I handled all the stones; but somehow the temple grew up of itself and lots of people were coming from all directions to look at it, and someone, who seemed to be William James, said, 'It is the most valuable part of the temple,' and I felt very proud. . . .' " After another interjection of the distressing problem of her life just alluded to, the dream ends with the figure

of "a beautiful shining angel with golden spreading wings and the word 'Hope' written on his forehead." This figure "spread his lovely wings and rose right up through the temple and became the top of the spire, a gorgeous shining figure of Hope." *

After this dream was obtained the subject, who had no knowledge that any suggestion had been given to induce the dream, was told to analyze the dream herself by the method of associative memories. As is customary in the use of this method, in which she had had considerable experience, the memories associated with each element of the dream were obtained. These memories all led back directly to her interest in psychology and desire to contribute some original work, and to her own life's experiences. Every one of the dream-elements (temple, spires, foundations, stones, bleeding hands, drop of blood from the wound in her heart, etc.) evoked associative memories which justified the inference that these elements were symbolisms of past experiences or of constructive imagination.

* William James had once said to her in my presence that she could make a valuable contribution to psychology. It is interesting to note, although it is aside from the question at issue, that this subject had strenuously denied that there was any "hope," insisting that she was absolutely devoid of any such sentiment. Through hypnotic memories, however, I was able to demonstrate that this was only consciously true, and that there were very evident and strong coconscious ideas of hope of which she was not consciously aware. She had refused to acknowledge these ideas to herself and by repression had dissociated them from the personal consciousness. These ideas now expressed themselves symbolically in the dream.

That this dream was determined by, and the explicit imaginary fulfilment of the antecedent wish made use of in the experiment and motivated by the suggestion would seem to be conclusively shown.

If, then, in any case a causal relation between an antecedent wish and its dream fulfilment exists, it follows that there must be some link between that wish experienced in the past and the present dream fulfilment, some mode, mechanism, or process by which a past thought, without entering consciousness, can continue to its own fulfilment in a conscious work of the imagination, the dream. I say without entering consciousness because the original specific thought-wish does not appear in the dream consciousness, which is only the fulfilment. The phenomenon as a whole is also inexplicable unless there was some motivating factor or force which determined the form of the dream just as in conscious fabrication and argument "we" consciously motivate and arrange the form of the product. The only logical and intelligible inference is that the *original wish,* becoming reawakened (by the preceding suggestion) during sleep, *continued to function outside of the dream consciousness, as a motivating and directing subconscious process.*

But what was the content of this process, and to what extent can its elements be correlated with those of the dream? The experimental data of this dream do not afford an answer to this question. (Those of the observation I shall next give will permit a deeper insight into the character and content

of their process.) It is a reasonable inference, however, inasmuch as the different elements of the dream—temple, stones, etc., the material out of which it is constructed—are found to be logical symbolizations of their associative memories, that these memories took part in the subconscious process and consequently may be correlated with their dream-symbols. In other words the content of the subconscious process was more than a wish, or wish neurogram, it included a large complex of memories of diverse experiences that can be recognized through their symbolizations in the dream. This complex, motivated by a particular wish, fabricated the dream, just as in the hallucinations I have cited an underlying process fabricated the hallucination as a symbolic expression of a subconscious judgment, self-reproach, etc. To do this a process that must be termed a *subconscious intelligence* was required. The dream was an allegory, a product of constructive imagination in the logical form of an argument, and if constructed by an underlying process the latter must have had the same characteristics.*

* We must remember that a dreaming state is a dissociated state (like a fugue or trance), and numerous observations have shown that in such conditions any of the dormant related experiences of life may modify, repress, resist, alter, and determine the content of the dissociated consciousness. It is difficult to conceive of a dream allegory being constructed by the dream consciousness itself. If that were the mechanism, we should expect that the associative ideas for which symbols are chosen would appear during the dream construction as is the case in waking imagination. The method of the mental processes is very different in the latter. We there *select* from a

This experimental dream confirms therefore the general principle formulated by Freud from the analysis of dreams in which the causal factor is an inferred wish. It is likewise on the assumption of my having correctly inferred this factor that I have insisted that a dream may be a fabricated expression of thoughts other than wishes or may be the solution of an unsolved problem. In this last case *the dream phenomena and mechanism seem to be analogous in every way to the subconscious solution of mathematical problems* which I have already described. In such and other cases the subconscious process would seem to be a continuation and elaboration of the antecedent suggested problem.

In dreams, then, or, as we should strictly limit ourselves for the present to saying, *in certain dreams,* there are, as Freud first showed, two processes; one is the conscious dream, the other is a subconscious process which is the actuated residuum of a previous experience and determines the dream.* It would be going beyond the scope of our

number of associative ideas that crowd into consciousness, choose our symbols, and remember the rejected ideas. This is not the case with dream imagination. The imagery develops *as if* done by something else.

* It must not be assumed that all dreams are determined by a subconscious process or that all are symbolic. On the contrary, from evidence in hand, there is reason to believe that some dreams have substantially the same mechanism as waking imagination subject to the limitations imposed by the existing dissociation of consciousness during sleep. Just as, in the waking state, thoughts may or may not be determined by subconscious processes, so in the sleeping state. We know too little about the mechanisms of thought to draw wide generalizations or to dogmatize.

subject to enter into a full exposition of this interpretation at this time and I must refer you for a discussion of the dream problem to works devoted to the subject.

We have not, of course, touched the further problem of the *How:* how a subconscious intelligence induces a conscious dream which is not an emergence of the elements of that intelligence into self-consciousness, but a symbolization of them. This is a problem which still awaits solution. From certain data at hand it seems likely that so far as concerns the hallucinatory perceptual elements of a dream they can be accounted for as the *emergence of the secondary images* pertaining to the subconscious "ideas."

The following observation is an *example of subconscious versification and* also of *constructive imagination.* It also, I think, gives an insight into the character and content of the underlying process which constructs a dream. I give the observation in the subject's own words:

"I woke suddenly some time between three and four in the morning. I was perfectly wide awake and conscious of my surroundings but for a short time—perhaps two or three minutes—I could not move, and I saw this vision which I recognized as such.

"The end of my room seemed to have disappeared, and I looked out into boundless space. It looked misty but bright, as if the sun was shining behind a light fog. There were shifting wisps of fog blowing lightly about, and these wisps seemed to gather into the forms of a man and a woman. The figures were perfectly clear and lifelike—I recognized them both. The man was dressed in dark every-day clothes, the woman in rather flow-

ing black; her face was partly hidden on his breast; one arm was laid around his neck; both his arms were around her, and he was looking down at her, smiling very tenderly. They seemed to be surrounded by a sort of rosy atmosphere; a large, very bright star was above their heads—not in the heavens, but just over them; tall rose bushes heavy with red roses in full bloom grew up about them, and the falling petals were heaped up around their feet. Then the man bent his head and kissed her.

"The vision was extraordinarily clear and I thought I would write it down at once. I turned on the light by my bedside, took pencil and paper lying there and wrote, as I supposed, *practically what I have written here.* I then got up, was up some minutes, went back to bed, and after a while to sleep. The clock struck four soon after getting back into bed. I do not think I experienced any emotion at the moment of seeing the vision, but after writing it down I did.

"The next morning I picked up the paper to read over what I had written and was amazed at the language and the rhythm. This is what I had written:

"'Last night I waked from sleep quite suddenly,
And though my brain was clear my limbs were tranced.
Beyond the walls of my familiar room
I gazed outward into luminous space.
Before my staring eyes two forms took shape,
Vague, shadowy, slowly gathering from the mists,
Until I saw before me, you—my Love!
And folded to your breast in close embrace
Was she, that other, whom I may not name.
A rosy light bathed you in waves of love;
Above your heads there shone a glowing star;
Red roses shed their leaves about your feet.
And as I gazed with eyes that could not weep
You bent your head and laid your lips on hers.
And my rent soul' . . . [Apparently unfinished.]

"The thoughts were the same as my conscious thoughts had been—the vision was well described—but the language was entirely different from anything I had thought, and the writing expressed the emotion which I had not consciously experienced in seeing the vision, but which (I have since learned) I had felt during the dream, and which I did consciously feel *after* writing. When I wrote I meant simply to state the facts of the vision."*

The subject was unable to give any explanation of the vision or of the composition of the verse. She rarely remembers her dreams and had no memory of any dream the night of this vision. By hypnotic procedure, however, I was able to recover memories of a dream which occurred just before she woke up. It appeared that in the dream she was wandering in a great open space and saw this "picture in a thin mist. The mist seemed to blow apart" and disclosed the "picture" which was identical with the vision. At the climax of the dream picture the dreamer experienced an intense emotion well described in the verse by the unfinished phrase, "My rent soul . . ." The dreamer "shrieked, and fell on the ground on her face, and grew cold from head to foot and waked up."

The vision after waking, then, was a repetition of a preceding *dream* vision and we may safely assume that it was fabricated by the same underlying proc-

* "For two or three days previously I had been trying to write some verses, and had been reading a good deal of poetry. I had been thinking in rhythm. I had also been under considerable nervous and emotional strain for some little time in reference to the facts portrayed in the verse."

ess which fabricated the dream, this process repeating itself after waking.

So far the phenomenon was one which is fairly common. Now when we come to examine the automatically written script we find it has a number of significant characteristics. (1) It describes a conscious episode, (2) As a literary effort for one who is not a poetical writer it is fairly well written and probably quite as good verse as the subject can consciously write; (3) It expresses the mental attitude, sentiments and emotions experienced in the dream but not at the time of the vision. *These had also been antecedent experiences;* (4) Both the central ideas of the verse and the vision symbolically represented certain antecedent presentiments of the future; (5) The script gives of the vision an interpretation which was not consciously in mind at the moment of writing.

Now, inasmuch as these sentiments and interpretations were not in the conscious mind at the moment of writing, the script *suggests* that the process that wrote it was not simply a subconscious memory of the vision but the same process which fabricated the dream. Indeed, the phenomenon is open to the suspicion that this same process expresses the same ideas in verbal symbolism as a substitution for the hallucinatory symbolism. To determine this point, an effort was made to recover by technical methods memories of this process; that is to determine what wrote the verse and by what sort of a process. The following was brought out:

1. The script was written automatically. The subject thought she was writing certain words and expressing certain thoughts and did not perceive that she was writing different words. "Something seemed to prevent her seeing the words she wrote." There were two trains of "thought."

2. The "thoughts" of the verse were in her "subconscious mind."* These "thoughts" (also described as "words") were not logically arranged or as written in the verse, but "sort of tumbled together—mixed up a little." "They were not like the thoughts one thinks in *composing* a verse." There did not seem to be any attempt at selection from the thoughts or words. No evidence could be elicited to show that the composing was done here.

3. Concurrently with these subconscious, mixed-up thoughts coconscious "images" of the words of the verse came just at the moment of writing them down. The images were bright, printed words. Sometimes one or two words would come at a time and sometimes a whole line.

In other words all happened *as if* there was a deeper underlying process which did the composing and from this process certain thoughts without logical order emerged to form a subconscious stream and after the composing was done the words of the verse emerged as coconscious images as they were

* By this is meant "thoughts" of which she was not aware. Numerous observations on this subject have disclosed such subconscious ideas in connection with other phenomena. This corresponds with the testimony of other subjects previously cited. (Lecture VI.)

to be written. This underlying process, then, "automatically" did the writing and the composing. Hence it seemed to the subject even when remembering in hypnosis the subconscious thoughts and images that both were done unconsciously.

As to whether this underlying process was the same as that which fabricated the dream and the hallucination, the evidence, albeit circumstantial, would seem to render this almost certain. In the first place the verse was only a poetical arrangement of the subconscious thoughts disclosed; the vision was an obvious symbolic expression or visual representation of the same thoughts (that is, of course, of those concerned with the subject matter of the vision). The only difference would seem to be in the form of the expression—verbal and visual imagery respectively.* In the second place the vision was an exact repetition of the dream vision. It is not at all rare to find certain phenomena of dreams (visual, motor, sensory, etc.) repeating themselves after waking.† This can only be explained by the subconscious repetition of the dream process. Consequently we are compelled to infer the same subconscious process underlying the dream-vision. More than this, it was possible to trace

* As a theory of the mechanism of the vision I would suggest that it was the emergence of the secondary visual images belonging to the subconscious ideas.

† See page 102. Also Prince: The Mechanism and Interpretation of Dreams. *Jour. Abnormal Psychology.* Oct.-Nov., 1910. G. A. Waterman: Dreams as a Cause of Symptoms. Ibid. Oct.-Nov., 1910.

these thoughts back to antecedent experiences of the dreamer, so that in the last analysis the dream-vision, waking-vision, and poetical expression of the vision could be related with almost certainty to the same antecedent experiences as the causal factors.

Certain conclusions then seem compulsory: underlying the dream, vision, and script was a subconscious process in which the fundamental factors were the same. As this process showed itself capable of poetical composition, constructive imagination, volition, memory, and affectivity it was a *subconscious intelligence.*

As to its intrinsic nature—coconscious or unconconscious—according to the evidence at least the process that wrote the script contained conscious elements—the coconscious thoughts and images.

We may assume the same for the dream and the vision. As to the mechanism of the vision it is quite conceivable, not to say probable, that, corresponding to the coconscious images of the printed words during the writing, there were similar images of the vision scene (both in the dream and the waking state), but these *instead of remaining coconscious emerged into consciousness to be the vision.** Whether the still deeper underlying process was conscious or unconscious could not be determined by any evidence accessible and must be a matter of hypothesis.

* I base this theory on other observations where coconscious images or "visions" of scenes occurred. When these images emerge into consciousness the subject experienced a vision.

The chief importance that attaches to this observation, it seems to me, is the insight it gives into the character of the underlying process of a dream. If the conclusions I have drawn are sound, then the subconscious process which determines the conscious dream may be what is actually an *intelligence* and it matters not whether a coconscious or unconscious one. This seems to me to be a conclusion fraught with the highest significance for the theory of dreams and hallucinatory phenomena in general. Of course we all know well enough that dissociated subconscious processes may be intelligent and influence the content of the personal consciousness, as witness coconscious personalities. If the underlying process of a dream may be something akin to such a personality, something capable of reasoning, imagination and volition, it renders intelligible the fundamental principle of the Freudian theory of a double process—the "latent" and "manifest" dream. One of the difficulties in the general acceptance of this theory has been, I think, the difficulty of conceiving a subconscious process—the "latent dream"—capable of the intelligent fabrication of a "manifest" dream phantasy which is a cryptic symbolization of the subject's thoughts. Such a fabrication has all the earmarks of purpose, forethought and constructive imagination. But if this underlying process can be identified, even though it be in a single case, with such an intelligence as that which wrote the poetical script we have studied, it

is plainly quite capable of fabricating the wildest dream phantasy.

I have suggested that the *subconscious intelligence* may be *comparable to the phenomenon of a coconscious personality.* It is worth noting in this connection that in the case of Miss B. the coconscious personality, Sally, who claimed to be awake while Miss B. was dreaming, also claimed that Miss B. sometimes dreamed about what Sally was thinking of at the moment.* In other words, the thoughts of a large systematized coconscious intelligence determined the dream just as these thoughts sometimes emerged into Miss B.'s mind when awake. That a coconscious personality may persist awake while the principal personality is asleep I have been able to demonstrate in another case (B. C. A.). It was also noted in Dr. Barrows' case of Anna Winsor. Moreover, Sally was shown to be a persistent, sane coconsciousness while Miss B. was delirious and also while she was apparently deeply etherized and unconscious.† After all it is difficult to distinguish *in principle* the condition of sleep with a persisting coconsciousness from a state of deep hypnotic trance where the subject is apparently unconscious. In this condition, although the waking consciousness has disappeared, there can be shown to be a persisting "secondary" consciousness which can be communicated with by automatic writing and which later can exhibit memories of occurrences in

* The Dissociation, p. 332.

† The Dissociation of a Personality, p. 330.

the environment during the hypnotic trance. (B. C. A.)

What has been said does not touch, of course, the other mechanisms of the Freudian theory nor the unessential, greatly over-emphasized theory that the subconscious dream is always a sexual wish. On the contrary, the principle throws a strong, *a priori* doubt upon the correctness of this generalization. It is plainly, however, a matter of fact which might be easily determined by observation were it not for the difficulty of correctly referring clinical phenomena to the correct antecedent experiences as their causal factors. In the last analysis it becomes always a matter of interpretation.

Applied psychology.—Much has been discovered in recent years regarding the part played by subconscious processes in the production of normal and abnormal phenomena. But we do not as yet know the possibilities and limitations of these processes. We have as yet but an imperfect knowledge of what they can do, what they can't do, and what they do do, and of the mechanisms by which they are called into play and provoke phenomena. *Many pathological phenomena* have been shown to be due to subconscious processes; and it is quite probable that these play an important part in determining the mental processes of normal life, but this is still largely theory. In applied psychology and psychopathology the "subconscious" has been made use of to explain many phenomena with which we have

practically to deal. Assumed as a concept the phenomena are explained by it with a greater or less degree of probability. In those *hysterical conditions* where the subconscious processes have been shown to be split-off conscious processes, we can often recover memories of the latter and demonstrate their relation to the hysterical phenomena by the various technical methods already mentioned. But where this cannot be done, as is ordinarily the case, some conserved antecedent experience must be inferred as the causal factor and assumed to be the functioning subconscious process which determines the phenomenon. To a large extent, then, in applied psychology and psychopathology the postulation in specific cases of a subconscious process is theoretical and open to more or less doubt. In other words, although a principle may be established, its application, as in all applied sciences, is apt to meet with difficulties

Now the application of the principle of a subconscious process to the explanation of a given phenomenon is rendered peculiarly difficult because for practical purposes it is not so much the question of a subacting process that is at issue as it is of what particular antecedent experience is concerned in the process. The question is of the causal factor. For example, we may know from general experience in a large number of instances that a given hysterical phenomenon—a tic or a convulsive attack or an hallucination or a dream—must be in all probability determined by a subconscious process derived from

some conserved experience, but what specific experience may be a matter of considerable uncertainty. *Hence the different theories and schools of interpretation* that have arisen. The importance of clearly appreciating the nature of such problems and properly estimating the different theories at their true value is so great that I may be permitted a few words in further explanation.

Let us take dreams as a type. The conscious dream may be made up of fantastic imagery and apparently absurd thoughts without apparent logical meaning. Now from general experience we may believe that the dream is a cryptic symbolic expression of a logical subconscious process—perhaps a wish. The question is, what wish? The symbolism cannot be deciphered on its face. Now, by the analytic method associative memories pertaining to each element of the dream are recovered in abstraction. When a memory of antecedent thoughts of which the dream element is a logical symbolism or synonym and which give an intelligent meaning to the dream is recovered, we infer that these antecedent thoughts are contained in the determining subconscious process. Further, as it is found that certain objects or actions (e. g., snakes, flying, etc.) frequently occur in the dreams of different people as symbolisms of the same thoughts, it is inferred that whenever these objects or actions appear in the dream they are always symbolisms of the same underlying thoughts.

Obviously the mere fact of an antecedent experi-

ence arising as an associative memory is not of itself evidence of its being the causal factor. Hundreds of such memories might be obtained. To have evidential value the memory must give logical meaning to the dream or dream element under investigation. Now, as a matter of fact, more than one memory can often be obtained which answers these conditions. Consequently it becomes a matter of selection from memories, or interpretation, as to which is the correct solution of a given dream problem—and *mutatis mutandis* of a pathological phenomenon. Naturally the selection is largely determined by personal views and *a priori* concepts. It also follows that if one accepts the universality of a given symbolism and is committed to a given theory one can, by going far enough, find associations in vast numbers of dreams that will support that theory. The correct solution of a dream problem, that is, the correct determination of the specific underlying process, depends upon the correct determination of the causal factor and this must be inferred. The inferential nature of the latter factor therefore introduces a possible source of error. There must frequently be considerable latitude in the interpretation. This is not to gainsay that in a large number of instances the logical relation between antecedent experiences (recovered by associative memories) and the dream is so close and obtrusive that doubt as to the true subconscious process can scarcely be entertained.

An example of a condensed *analysis of a dream*

will illustrate the practical difficulty often presented in determining by clinical methods the correct causal factor and subconscious process of a dream. I select a simple one which consists of two scenes: *

"C. was somewhere and saw an old woman who appeared to be a *Jewess.* She was holding a *bottle* and a *glass,* and seemed to be drinking whisky. Then this woman changed into her own *mother,* who had the bottle and glass, and appeared likewise to be drinking whisky.

"Then the door opened and her *father* appeared. He had on her *husband's dressing gown,* and he was holding *two sticks of wood* in his hand."

Before interpreting this dream I will state that the subject had been tormented (as was brought out by the associative memories) by the question whether poor people should be condemned if they yielded to temptation, particularly that of drinking. This problem she could not answer satisfactorily to herself. It is the inferred causal factor in the dream process. The dream gave an answer to this problem.

Let me also point out that the material, that is, the elements out of which this dream was constructed (indicated by the words italicized), was found in the thoughts of the dreamer on the preceding day and particularly just before going to sleep. The first scene of the dream ends with the mother drinking whisky: the second scene represents the father appearing with two sticks of wood.

* Mechanism and Interpretation of Dreams, *Journal Abnormal Psychology,* Oct.-Nov., 1910.

For the sake of simplicity of illustration I will confine myself to the *interpretation* of this first scene as it will answer our present purposes.

"As to the first scene" (by technical methods of analysis) "a rich collection of memories was obtained. It appeared that on the previous morning the subject had walked with a *poor Jewess* through the slums, and had passed by some men who had been *drinking.* This led her to think at the time of the lives of these poor people; of the *temptations* to which they were exposed; of how little we know of this side of life and of its *temptations.* She wondered what the effect of such surroundings, particularly of seeing people *drinking,* would have upon the child of the Jewess. She wondered if such people ought to be condemned if they yielded to drink and other temptations. She thought that she herself would not blame such people if they yielded, and that we ought not to *condemn* them. Then in the psychoanalysis there came memories of her mother, whose character she admired and who *never condemned any one.* She remembered how her mother, who was an invalid, always had a glass of *whisky* and water on her table at night, and how the family used to joke her about it. Then came memories again of her husband sending *bottles of whisky* to her mother; of the latter *drinking* it at night; of the men whom she had seen in the slums and who had been *drinking.* These, very briefly, were the experiences accompanied by strong feeling tones which were called up as associative memories of this scene of the dream. With these in mind, it is not difficult to construct a logical, though symbolic, meaning of it. In the dream *a* Jewess (not *the* Jewess, but a type) is in the act of drinking whisky—in other words, the poor, whom the *Jewess* represents, yield to the temptation which the dreamer had thought of with considerable intensity of feeling during the day. The dreamer's own judgment, after considerable cogitation, had been that such people were not to be condemned. Was she right? The dream answers the question, for the Jewess changes in the dream to her mother, for whose judgment she had the utmost respect. Her

mother now drinks the whisky as she had actually done in life, a logical justification (in view of her mother's fine character and liberal opinion) of her own belief, which was somewhat intensely expressed in her thoughts of that morning, a belief in not condemning poor people who yield to such temptations. The dream scene is therefore the symbolical representation and justification of her own belief,* and answers the doubts and scruples that beset her mind."

Whether or not this is the correct interpretation of this dream depends entirely upon whether the true causal factors were found. If through the analysis this was the case, as I believe—namely, the scruple or ethical problem whether poor people who yield to temptation ought to be condemned—then the interpretation given is logically sound and the dream is an answer to the doubts and scruples that beset the dreamer's mind. But the answer is a pictorial symbolism and therefore requires an intervening subconscious process which induces and finally expresses itself in the symbolism. We may suppose that this process in response to and as a subconscious incubation of the ethical problem took some form like this: "Poor people like the Jewess are not to be condemned for yielding to the temptation (of drinking) for my mother, who was beyond criticism, showed by her life she would not have condemned them."

This may or may not be the true subconscious

* The symbolic expression of beliefs and symbolic answers to doubts and scruples is quite common in another type of symbolism, viz., visions. Religious and political history is replete with examples.

process and the correct interpretation of the dream. But it is one possible and logical interpretation based upon the actually found antecedent experiences and associative memories of the dreamer. Now it so happens that this interpretation and that of other dreams * which I endeavored to trace to antecedent experiences have been warmly challenged by certain clinicians because the inferred causal factors were not found to be antecedent repressed sexual wishes. It is insisted on theoretical grounds that the content of the dreams plainly indicated that there must have been such wishes and that if these had been found this dream would have been unfolded as a logical symbolical fulfilment of a sexual wish. Which interpretation is correct is inconsequential for our present purpose. The controversy only relates to the universality of the sexual theory of dreams. The point is that this difference in interpretation shows the possibility of error in the determination of the causal factor and the subconscious process by clinical methods. The dream may be logically related to two or more antecedent experiences and we have no criterion of which is the correct one. To insist upon one or the other savors of pure dogmatism.† Indeed, the justification for the postulation in a dream of any subconscious proc-

* *Loc. cit.*

† It has been answered that experience in a large number of cases shows that dreams always can be related logically to sexual experiences. To this it may be answered they can also in an equal number of cases, indeed in many of these same cases, be related to non-sexual experiences.

ess in the last analysis depends upon the soundness of the postulation of the antecedent experience as the causal factor. If this factor falls to the ground the subconscious process falls with it.

The second point to which this discussion leads us is that the latitude of interpretation allowed by the method of analysis has given rise to different views as to the specific character of the subconscious process found in many dreams. According to the theory of Freud, to whose genius we are indebted for the discovery of this process, it is almost always a sexual wish and the dream is always the imaginary, even though cryptic, fulfilment of that wish. On the other hand, as a result of my own studies, if I may venture to lay weight upon them, I have been forced to the conclusion that *a dream may be the symbolical expression of almost any thought* to which strong emotional tones with their impulsive forces have been linked, particularly anxieties, apprehensions, sorrows, beliefs, wishes, doubts, and scruples, which function subconsciously in the dream. It may be a solution of unsolved problems with which the mind has been occupied,* just as in the waking state a mathematical or other problem may be solved subconsciously. In some subjects the problem is particularly apt to be one involving a conflict between opposing im-

* *Loc. cit.* It is possible, however, that sometimes the problem has been solved subconsciously in the waking state, the answer then appearing in the dream.

pulses, therefore one which has troubled the dreamer.*

We have seen that in experimental and spontaneous hallucinatory phenomena, where the causal factor is known, a subconscious process is the essential feature of the mechanism. In this respect the mechanism is identical with that of certain dreams. Indeed, dreams are one type of hallucinatory phenomena. In fact we met with one dream the chief element of which was repeated afterward in the waking state as a vision. We are justified, then, in applying the principle of a subconscious process to the elucidation of the *visions of normal people,* although it may be difficult to determine exactly the specific content of the process and the antecedent thought from which it was derived. Sometimes the content of a vision and the known circumstances under which it occurred are sufficient to enable us to interpret the phenomenon with reasonable certainty. In the following historical examples it is not difficult to recognize that the vision was a symbolic answer to a problem which had troubled the conscience of the Archduke Charles of Austria. Unable to solve his problem consciously and come to a decision, it was solved for him by a subconscious process. Indeed, as a fact, the vision was accepted by Charles as an answer to his doubts and perhaps changed the future history of Austria.

* Here we find an analogy with certain allied phenomena—the visions and voices experienced as phenomena of sudden religious conversion.

"The Archduke Charles (the father of the present Emperor of Austria) was also greatly troubled in his mind as to the right to waive his claim to the crown in favor of his son. According to his own statement he only finally made up his mind when, while earnestly praying for guidance in his perplexity, he had *a vision of the spirit of his father, the late Emperor Francis, laying his hand on the head of his youthful grandson and thus putting all his own doubts to rest.*" *

The likeness in type of the dream which we have just discussed to this vision is instructive. In the former the mother of the dreamer answers the question of conscience by drinking the whisky; in the latter the father of the visualizer does the same by laying his hand on the head of the object of the doubt.

I have already pointed out the evidence for a subconscious process underlying the hallucinatory phenomena of sudden religious conversion.† I may further cite here, as an analogous phenomenon, the following historical example of not only hallucinatory symbolism, but of *explicitly conscious processes of thought* which were elaborated by subconscious processes. It is Margaret Mary's vision of the Sacred Heart. Margaret earnestly desired (according to her biographer)——

"To be loved by God! and loved by him to distraction (aimé jusqu'à la folie)!—Margaret melted away with love at the

* Francis Joseph and His Times Sir Horace Rumbold. Page 151. (Italics mine.)

† See also, "The Psychology of Sudden Religious Conversion," *Journal Abnormal Psychology*, April, 1906, and "The Dissociation," 2nd Edit., pages 344 and 564; also James' "The Varieties of Religious Experience."

thought of such a thing. Like St. Philip of Neri in former times, or like St. Francis Xavier, she said to God: 'Hold back, O my God, these torrents which overwhelm me, or else enlarge my capacity for their reception.' "

The answer and the form of the fulfilment of this wish came as an hallucination. She had a vision of Christ's Sacred Heart

" 'surrounded with rays more brilliant than the sun, and transparent like a crystal. The wound which he received on the cross visibly appeared upon it. There was a crown of thorns roundabout this divine Heart, and a cross above it.' At the same time Christ's voice told her that, unable longer to contain the flames of his love for mankind, he had chosen her by a miracle to spread the knowledge of them. He thereupon took out her mortal heart, placed it inside of his own and inflamed it, and then replaced it in her breast, adding: 'Hitherto thou hast taken the name of my slave, hereafter thou shalt be called the well-beloved disciple of my Sacred Heart.' " *

There is scarcely room to doubt, on the strength of the evidence as presented, that the antecedent longings of Margaret impelled by the conative force of their emotions were the causal factor of this vision. These longings, organized in the unconscious, must have gone through subconscious incubation (as William James has pointed out) and then emerged after maturity into consciousness as a symbolic visualization accompanied by hallucinatory words which were the expression of explicit subconscious imagination. Indeed, all such

* Quoted by William James, page 343.

hallucinatory symbolisms—like the mental phenomena in general of sudden religious conversion—can only be psychologically explained as the emergence into consciousness of subconscious processes. The problem in each case is the determination of the content of the process.*

Reflection, consideration, meditation.—We are entering upon more uncertain ground in attempting to apply the mechanism of subconscious processes to every-day thought. There are certain types of thought, however, which behave as if this mechanism were at work. When, for instance, we take a problem "under advisement," reflect upon it, give it "thoughtful consideration," it seems as if, in weighing the facts pro and con, in looking at it from different points of view, i. e., in switching it into different settings, in considering all the facts related to it, we *voluntarily* recall each fact that comes into consciousness. Yet it is quite possible, and indeed I think more than probable, reasoning from analogy, that the processes which present each fact, switch each point of view, or setting into consciousness, are subconscious and that what we do is chiefly to select from those which are thus brought into consciousness the ideas, settings, etc., which fulfil best the requirements of the question. In profound reflection or attention to thought (a form of absent-

* Some will undoubtedly read into Margaret's vision a cryptic sexual symbolism. To do so seems to me too narrow a view, in that it fails to give full weight to other instincts (and emotions) and to appreciate all the forces of human personality.

mindedness) it seems as if it were more a matter of attention to and selection from the "free associations" which involuntarily come into the mind than of determining voluntarily what shall come in. If this be so, it is evident that the subconscious plays a much more extensive part in the mechanism of thought than is ordinarily supposed. We have not, however, sufficient data to allow us to do much more than theorize in the matter. Yet there are certain data which suggest the probability of the correctness of this hypothesis. In this connection I would point out how entirely confirmatory of this view is the testimony of the hypnotic consciousness which was cited in the previous lecture and which I will ask you to recall. You will remember that this testimony was to the effect that when a problem was under consideration associative memories required for its solution kept emerging out of the unconscious into the secondary consciousness.*

Consider certain facts of every-day experience. A novel and difficult question is put up to us for decision. We have, we will say, to decide whether a certain piece of property situated in a growing district of a city shall be sold or held for future development: or a political manager has to decide whether or not to pursue a certain policy to win an election; or the President of the United States has to decide the policy of the government in certain land questions in Alaska. Now each of us would probably say that we could not decide such a ques-

* Lecture VI, pp. 169-172.

tion offhand; we would want time for consideration. If we attempted voluntarily, at the moment the question is put, to recall to mind all the different facts involved, to consider the given question from all aspects, to switch the main facts into their different settings, we would find it an impossible thing to do. We consequently take the matter "under advisement," to use the conventional expression. We want time. Now what we apparently, and I think undoubtedly, do is to put the problem *into* our minds and leave it, so to speak, to incubate. Then, from time to time, as we take up the matter for consideration, the various facts involved in the different aspects of the question, and belonging to their different settings, arise to mind. Then we weigh, compare, and estimate the value of these different facts and arrive at a judgment. All happens as if subconscious processes had been at work, as if the problem had been going through a subconscious incubation, switching in this and switching in that set of facts, and presenting them to consciousness, the final selection of the deciding point of view being left to the latter. The subconscious garners from the storehouse of past experiences, those which have a bearing on the question and are required for its solution, brings them into consciousness, and then our logical conscious processes form the judgment. The degree to which subconscious processes in this way take part in forming judgments would vary according to the mental habits of the individual, the complexity of the problem, the affectivity and conflicting char-

acter of the elements involved. Under this theory we see that there is a deeper psychological basis for the every-day practice of taking "under advisement" or "into consideration" a matter, before giving judgment, than would appear on the surface. There is considerable experimental evidence in favor of this theory. In discussing above the subconscious solution of problems I cited certain evidence, obtained from the memories of subjects in hypnosis, for coconscious and unconscious processes taking part in such solutions. I have been able to accumulate evidence of this kind showing the coöperation of processes outside of consciousness in determining the point of view and final judgment of the subject when a matter has been under advisement; particularly when the subject has been disturbed by doubts and scruples. It is plain that in the final analysis any question on which we reserve our judgment is a problem which we put *into* our minds. And, after all, *it is only a question of degree and affectivity between the state of mind which hesitates to decide an impersonal question, like a judicial decision, and one that involves a scruple of conscience.* This latter state often eventuates in hallucinatory and other phenomena involving subconscious processes. Scruples of conscience, it is true, usually have strong affective elements as constituents, but the former may also have them, particularly when involving personal ambitions, political principles, etc.

LECTURE VIII

THE UNCONSCIOUS

Our studies up to this point have led us to the general conclusion that a large measure of the experiences of life are conserved or deposited in what may be called a storehouse of neurographic dispositions or residua. *This storehouse is the unconscious.* From this storehouse our conscious processes draw for the material of thought. Further, a large amount and variety of evidence, which we have briefly and incompletely reviewed, has shown that conserved experiences may function without arising into consciousness, i. e., as a subconscious process. To what extent such processes take part in the mechanism of thought, contribute to the formation of judgments, determine the point of view and meaning of ideas, give direction to the stream and formulate the content of consciousness, and in particular conditions, by a species of translation, manifest themselves consciously as phenomena which we designate abnormal constitute special problems which require to be studied by themselves.

Physiological memory and processes.—There is one phase of the unconscious which for the sake of com-

pleteness ought to be touched upon here, particularly as it is of considerable importance in any biological conception of intelligence. *There is every reason to believe that* intrinsically *there is no essential difference between those physiological dispositions and activities of the lower nervous centers (subcortical ganglia and spinal cord), which condition and determine unconscious behavior, and those dispositions and activities of the higher centers—the cortex—which condition and determine both conscious and unconscious behavior.* The former are undoubtedly innate in that they are primarily conditioned by inherited anatomical and physiological prearrangements of neurons and the latter are preeminently acquired through experience although probably not wholly so. (Our knowledge of the localization of function in the nervous system is not sufficiently definite to enable us to delimit the localization of either innate or acquired dispositions.) The innate activities of the lower nervous centers so far as represented by movements can be clearly differentiated from those of the higher centers and recognized in the behavior of so-called "spinal" animals and of animals from which the cerebral hemispheres have been removed. In the former the connection between the spinal cord and all parts of the nervous system above having been severed, whatever movements are executed are performed by the spinal cord alone and therefore of course by unconscious processes. The latter animals, although their actions are more complex and closely approximate

(with important differences) those of normal animals, are also devoid or nearly devoid of consciousness. I say "nearly devoid" because in the interpretation of the experiments it is difficult to disprove that, as some hold, elementary sensations—qua sensation—are retained, though others regard the animals as purely unconscious physiological machines.

In the spinal animal, in response to specific stimuli, various movements are elicited which though of a purposive character are effected, as has been so admirably worked out by Sherington, by complex spinal mechanisms of a reflex character. The so-called "scratch reflex" and the reflex movements of walking, trotting, and galloping (the animal being suspended in air) are examples. Such reflexes involve not only the excitation of certain movements appropriate to the stimulus but the inhibition of antagonistic muscles and reflex movements. Further in the integration of the spinal system, reflexes are compounded, one bringing to the support of another allied accessory reflexes so that various cooperative movements are executed. A constellation of reflexes leads to quite complex spinal mechanisms responsive to groups of stimuli acting concurrently and resulting in behavior which is purposive and adaptive to the situation. The neural processes executing such movements are necessarily conditioned by inherited dispositions and structural arrangements of the neurons.

In the animal from which the cerebral hemi-

spheres only have been removed there can be little doubt that the physiological mechanisms governing behavior differ only in complexity, not in kind, from those of the spinal reflexes; that in passing through successive anatomical levels from the spinal animal to this decerebrate animal with the addition of each successive ganglion the increasing complexity of behavior corresponds to increasing complexity of mechanisms or compounding of reflexes. And yet in the decerebrate animal without consciousness, as we must believe (excepting perhaps elementary sensations), the subcortical ganglia and spinal cord continue to perform exceedingly complex actions ordinarily, as we suppose, guided in the normal animal by consciousness. The reptile crawls; the fish swims; indeed the lancet fish has no brain, all its functions being regulated by its spinal cord. The frog hops and swims; the hen preens its feathers, walks and flies; the dog walks and runs. These, however, are the simplest examples of decerebrate behavior. Indeed it may be quite complex. The more recent experiments of Schräder on the pigeon and falcon and Goltz and Rothmann on the dog, not to mention those of earlier physiologists, have shown that the decerebrate unconscious (?) animal performs about all the movements performed by the normal animal.* "A mammal such as a rabbit, in the same way as a frog and a bird, may

* For a general account of the behavior of decerebrate animals and summary of these experiments see Loeb's "Physiology of the Brain," and Schäfer's Text Book of Physiology.

in the complete or all but complete absence of the cerebral hemispheres maintain a natural posture, free from all signs of disturbance of equilibrium, and is able to carry out with success at all events all the usual and common bodily movements. And as in the bird and frog, the evidence also shows that these movements not only may be started by, but in their carrying out are guided by and coördinated by, afferent impulses along afferent nerves, including those of the special senses. But in the case of the rabbit it is even still clearer than in the case of the bird that the effects of these afferent impulses are different from those which result when the impulses gain access to an intact brain. The movements of the animal seem guided by impressions made on its retina, as well as on other sensory nerves; we may perhaps speak of the animal as the subject of sensations; but there is no satisfactory evidence that it possesses either visual or other perceptions, or that the sensations which it experiences give rise to ideas." *

Even *spontaneity* which at one time was supposed to be lost it is now agreed returns if the animal is kept alive long enough. It "wanders about in the room untiringly the greater part of the day" (Loeb).

Of course there are differences in the animal's behavior when compared with normal behavior, but these differences are not so easy to interpret in psychological terms. Loeb, apparently following

* M. Foster: A Text Book of Physiology, 1895, page 726.

Schräder, does not believe the animal is blind or deaf or without sensation for it reacts to light, to noise, to smell, to tactile impressions, etc. It avoids obstacles and is guided by visual impressions, etc. The falcon jumps at and catches a mouse introduced in its cage; the dog growls and snaps if its paw is pinched and endeavors to get away or bite the offending hand; the pigeon flies and alights upon a bar, apparently visually measuring distance, and so on. But though it is guided by visual and other sensory *impressions,* does it have visual, auditory and other *images,* that is, conscious sensory states? This is not easy to answer. It certainly acts like an animal that is not blind nor deaf nor without tactual sensation, and yet it is conceivable that it is guided simply by sensory mechanisms without conscious sensation. The main reason, apparently, for believing the animal to be without sensation, as some believe (e. g., Morgan) is the absence of the cerebral cortex in which alone sensation is believed to be "localized." Recently Rothmann * has succeeded in keeping alive for three years a dog from which the entire cerebrum was extirpated. It was then killed. Although the dog, like Goltz' dog, in its behavior exhibited an abundance of functions in the spheres of mobility, sensibility, feeding, barking, etc., Rothmann came to the conclusion that it was blind and

* Von M. Rothmann: Demonstration des Hundes ohne Grossirn. *Bericht über den V Kongress f. Experiment. Psychol. in Berlin, 1912,* page 256. The report is too meager to admit of independent judgment of the animal's behavior in many of its details.

deaf.* Although apparently without taste for bitter, sweet, sour, and acid, yet the dog reacted differently to edible and non-edible substances, swallowing the former and rejecting the latter (moist sand); raw flesh was eaten preferably to cooked flesh and Goltz' dog rejected from its mouth food made bitter with quinine. Some kind of gustatory processes (probably purely reflex as in Pawlow's association experiments) were therefore retained though not necessarily taste as such. But blindness and deafness in the dog cannot negative the retention in birds and other animals of visual and auditory impressions of some kind which guide and originate behavior. But whether such impressions are psychologically sensations or not, the animal certainly does not possess visual or other *perceptions,* because the "sensations" have no "meaning." Schräder's falcon, for example, would jump at and catch with its claws a moving mouse in the cage, but there the matter was at an end; it did not devour it as would a normal falcon. Any moving object had for it the same meaning as a mouse and excited the same movement. So the decerebrate dog does not distinguish friend from stranger and other dogs have no meaning for it. All objects are alike to all decerebrate animals. In the popular language of the street "all coons look alike" to them. In other

* Until the basal ganglia have been microscopically examined it cannot be determined that the loss of function was not due to secondary organic lesions. In Goltz' dog, which acted like a blind dog, one optic nerve was cut and the corpora striata and optic thalami were partly involved in the lesion.

words the main defect is loss of memory for conscious experiences, of what Loeb calls associative-memory, the conscious memory which gives meaning to sensations, transforms them by synthesis into *perception* of objects and gives still further meaning to the objects. Hence for the pigeon without its cerebrum "Everything is only a mass in space, it moves aside for every pigeon or attempts to climb over it, just as it would in the case of a stone. All authors agree in the statement that to these animals all objects are alike. They have no enemies and no friends. They live like hermits no matter in how large a company they find themselves. The languishing coo of the male makes as little impression upon the female deprived of its cerebrum as the rattling of peas or the whistle which formerly made it hasten to its feeding place. Neither does the female show interest in its young. The young ones that have just learned to fly pursue the mother, crying unceasingly for food, but they might as well beg food of a stone." *

One of the chief utilities of conscious memory is the means it offers the psycho-physiological organism to make use of past experiences to adapt present conduct to a present situation. This the brainless animal cannot do. Hence it is a mindless physiological automaton. All the actions performed by it, however complex they may be, are unquestionably performed and primarily conditioned by inherited neural arrangements and dispositions. They may

* Quoted from Schräder by Loeb.

be even regarded as complexly compounded reflex processes similar excepting in complexity, as Sherrington has held, to the mechanisms of the spinal cord. The behavior of the animal is therefore by definition instinctive. But even so this fact in no way throws light upon the intrinsic nature of the physiological process, but only upon the conditions of its occurrence. Acquired behavior is also conditioned—conditioned by acquired dispositions. The difference physiologically between the two is that in instinctive behavior the neural processes are confined to pathways established by evolutionary development, and in acquired behavior to pathways established by experience. Both must be conditioned by pathways, and the process in its inner nature must be the same in both. Many cortical processes, to be sure, are conscious—i. e., correlated with consciousness—but probably not all. And this quality of consciousness permitting of conscious memory is of great utility in the organization of acquired dispositions that provide the means for the adaption of the animal to each new environmental situation.

Furthermore, it is not at all certain that the behavior of the decerebrate animal is not in part determined by *secondarily acquired dispositions.* In the normal animal instinctive actions become modified and perfected after the very first performances of the act by conscious experience * and it is not at all certain that dispositions so acquired and essen-

* Cf. Lloyd Morgan: Instinct and Experience, 1912.

tial for these modifications are not conserved and incorporated in the unconscious neural arrangements of the subcortical centers. So far as this may be the case the acquired modifications of instinctive behavior may be manifested in the actions of the decerebrate animals. In other words, the unconscious processes of the lower nervous centers motivating movements (and visceral functions) may include *acquired dispositions or physiological memories.*

That the subcortical centers are capable of memory seems to have been shown for the first time by Rothmann's dog. This mindless animal proved to be capable of a certain amount of education. It learned to avoid hitting against objects, and to do certain tricks—jumping over a hurdle and following on its hind legs a stool upon which its fore feet were placed as the stool was dragged forward. "In the perfection of all these performances the influence of practice was easily recognized." This means, if the interpretation given is correct, that new dispositions and new connections may be acquired within the lower centers *without the intervention of the integrating influence of the cortex* or conscious intelligence.* This is an important contribution for apparently the attempt to educate brainless animals had not been previously made, and their capability for education demonstrated.

The important bearing which this fact has upon

* Dr. Morgan in his work, "Instinct and Experience," 1912, published before Rothmann's observations, remarks that this "is not inherently improbable" although it had not as yet been demonstrated.

this discussion is that it shows that unconscious processes are capable of memory, that is physiological memory. It may be said that this statement needs some modification if the sensory "impressions" guiding the decerebrate animal are to be interpreted as true psychological, however elementary, "sensations." It would seem to me on the contrary only to accentuate the fact that the processes of the brainless animal are on a transition level between the purely unconscious processes of the spinal animal and the purely (if ever wholly so) conscious processes of the normal animal, and that intrinsically all are of the same nature. If sensation enters into the complex reflex reactions of the brainless animal it would seem that it can only be an elemental conscious factor in a complicated unconscious physiological mechanism. In this mechanism it can have no more specific importance in determining behavior, because of the fact of its being a psychological state, than if it were a receptor "impression" intercalated in the arc of an innate process. It is not linked with any associative memories of the past or foresight into the future; it does not constitute conscious intelligence. As a conscious experience it cannot have that kind of "meaning" which in the normal animal modifies instinctive processes and determines conduct. It probably plays simply the same part in the whole process, which otherwise is wholly unconscious, that the associative sensory image plays in determining the flow of thick or thin saliva in Pawlow's dogs—sim-

ply a single link in a chain of associated reflex processes.

The next point to which I would direct attention is that from an objective point of view the behavior of the decerebrate animal may be in nature *intelligent* in the empirical sense of that word. The dog that growls and snaps when his foot is pinched, tries to draw it away, and, failing that, bites at the offending hand; the "educated" dog that jumps over a hurdle, and walks on his hind legs, following a stool supporting his front legs, to my way of thinking performs intelligent actions whether it has a brain or not. If intelligence is arbitrarily limited to actions performed by conscious processes, then intelligence becomes a mere question of terms.*

* From the point of view here adopted, the recent discussions and controversies over the problems of "instinct and intelligence" have been much muddled by the arbitrary denial of conscious elements to an instinctive process, and by the acceptation of consciousness or conscious experience as the criterion of intelligence. In this view instinct and intelligence become contrasted concepts which to my way of thinking they are not necessarily at all. If it is admitted that instinct is an innate disposition, its contrasted quality is that which is *acquired* and not the quality of consciousness. It is true that acquired behavior is commonly if not always determined by conscious processes (conscious experience), but likewise innate behavior may be determined by processes which contain conscious elements. Surely fear is instinctive and is a conscious element in an innate process; and so must be visual and other sensory images, as in the first peck of a chicken. To look upon the first visual image simply as conscious "experience," as an "onlooker," and reject it as a factor in the process which determines that first peck, seems to me to be arbitrary psychology if not physiology. If consciousness may be a quality of an innate process—and why not?—it cannot be a

There arises also the practical difficulty that certain types of behavior, which by common assent and common sense are regarded as purely automatic and unintelligent, must be termed intelligent because guided by consciousness. I cannot help thinking that "intelligence" is a pragmatic question, not a biological or psychological one. It would be much more conducive to a clear understanding of biological problems to use intelligence only as a convenient and useful expression, like sanity or insanity, to designate certain behavior which conforms to a type which, without strictly defining its limits, popular language has defined as intelligent. Sanity and insanity have ceased to be terms of scientific value because they cannot be defined in terms of specific mental conditions and much less in terms of mental processes. So intelligence cannot be de-

criterion of intelligence. The true converse of the conscious is the unconscious.

This adopted antithesis between consciousness and instinct, from this point of view as well as the arbitrary limitation of the localization of the whole of an instinctive process to the subcortical centers, vitiates the force of the very able presentation of the subject by Dr. Morgan, if I correctly understand him. I know of no data which forbid the cortex to be included in the innate mechanism of an instinctive process. On the contrary, it is difficult to understand instinctive behavior and its modifications through conscious experience unless cortical centers are included in the psycho-physiological arcs. At any rate we may define instinct and intelligence in terms of the conscious and the unconscious, or in brain terms, but we should not mix up these aspects with that of localization in the definition. Mr. McDougall's conception of instinct appeals to me more strongly from both a biological and a psychological point of view, and further seems to me to be more in consonance with the data of experience.

fined in terms of conscious and unconscious processes. Any attempt to do so meets with insuperable difficulties and becomes "confusion worse confounded." When we say then that the behavior of the decerebrate dog may be intelligent, all that is meant is that the animal exhibits behavior identical with that which in the normal animal we would empirically call intelligent. In this sense unconscious processes may exhibit intelligence. It was from this viewpoint, I think, that Foster concluded: "In short, the more we study the phenomena exhibited by animals possessing a part only of their brain, the closer we are pushed to the conclusion that no sharp line can be drawn between volition and lack of volition, or between the possession and absence of intelligence. Between the muscle-nerve preparation at one limit, and our conscious willing selves at the other, there is a continuous gradation without a break; we cannot fix on any linear barrier in the brain or in the general nervous system, and say 'beyond this there is volition and intelligence, but up to this there is none.'" *

It has already been pointed out (Lecture V) that, in man, complicated actions which have been volitionally and perhaps laboriously acquired may be afterwards involuntarily and unconsciously performed.† In other words, after intelligent actions

* A Text Book of Physiology, 1893, page 727.

† The localization of the processes concerned in all such acquired automatic behavior—whether it is in the cortex or subcortical centers—is an unsolved problem.

have been acquired by conscious processes, they may be performed by subconscious processes for which there is no conscious awareness and probably these may be either coconscious or entirely unconscious. There is no sharp dividing line between the activities of the unconscious, coconscious, and conscious.

When we descend in the scale of animal life to the insects (bees, ants, etc.,) we observe motor activity of a highly complex character of a kind that is termed intelligent, but we are forced to conclude, from various considerations, that the elements of consciousness have dwindled away to what can be nothing more than mere sensibility. In other words consciousness is reduced to its lowest terms, but behavior and the neural processes are maintained at a high level of complexity. Accordingly there is a disproportion between the complexity of the motor behavior and the inferred simplicity of consciousness, for in the higher animals the former would be correlated with complex psychological processes. If this be so, the motor activities must be determined by processes which are mostly unconscious.

In still lower forms of life the motor activities can be referred to simple tropisms, and thus necessarily are wholly unconscious.

Between the most complex unconscious physiological processes performed by the nervous system and the simpler cerebral processes accompanied by consciousness there is not as wide a step as might seem when superficially viewed. The physiological

process may, as we have seen, manifest itself in acts of quite as intelligent a character as those exhibited by the conscious process, and indeed more so; for the conscious act may be little more than a limited reflex. On the other hand a psychological process may be so elementary that it contains nothing of awareness of self, of intelligence, or of volition in the true sense—nothing more, perhaps, than an elementary sensation without even perception. But it may be said that the presence of the most rudimentary state of consciousness makes all the difference and renders the gulf between the two impassable.

We are not called upon to discuss that question here. It is one which involves the ultimate nature of physical processes. A distinction should be made between psychological and psychical, these not being coextensive and always interchangeable terms. Psychological pertains to the empirical data of consciousness, (thoughts, ideas, sensations, etc.) while psychical pertains to the inner or ultimate nature of these data. Though the data as given in consciousness are psychical, that which is psychical may not be solely manifested as psychological phenomena. It may be manifested as physical phenomena and perhaps be identified with the energy of the universe. Hence the doctrine of panpsychism. And so it may be that in its ultimate analysis an unconscious process is psychical (monism) although not psychological and not manifesting itself as a datum of consciousness. Certain it is that, *objectively*

viewed, there is nothing to distinguish physiological from psychological intelligence. If the extraordinary instinctive habits exhibited by insects, such as bees and ants and by still lower forms of animal life, can rightly be interpreted as, in large part at least, manifestations of physiological processes, as is quite possible, the distinction between the conscious and the unconscious in respect to intelligence and adaptability to environment would be reduced to one only of degree. That some of the lowest forms of life are endowed with consciousness, in any sense in which the word has psychological meaning, seems incredible, though they manifest instinctive intelligence of no mean order. The fact probably is, as I have just intimated, that those processes we call physiological and those we call psychological are in their inner nature identical, and the former are quite capable of functioning, incredible as it may seem, in a fashion that we are accustomed to believe can only be the attribute of conscious intelligence. This does not mean, of course, that the physiological intelligence can reach the same degree of perfection as that reached by conscious intelligence, though conversely, the latter may be of a lower order than physiological intelligence.* From this point of view we are logically entitled to regard

* If the subconscious processes which perform a mathematical calculation and other problems, which logically determine the symbolism of a dream, etc., can be correctly interpreted as unconscious, they plainly exhibit a higher order of intelligence than any conscious processes in lower animals, or even some conscious processes of man, like brushing away a fly.

physiological processes, even of the lower nervous centers and even though they are not acquired but due to congenital structural and functional arrangement, as phases of the unconscious.

Psycho-physical parallelism and monism.—According to the doctrine of psycho-physical parallelism every mental process is correlated with (accompanied by) a brain process. As brain processes thus viewed are "unconscious" (in the sense of not having the attribute of consciousness) we may express this in other terms and say: every "conscious" process is accompanied by an "unconscious" process. I have no intention of entering here into the question of the validity of the doctrine of psycho-physical parallelism. I wish merely to point out that if parallelism is a true formulation of the mind-brain problem, as I have just stated it, the converse ought to hold true, namely, that every brain process of a certain kind involving intelligence ought to be correlated with consciousness. But if some subconscious processes manifesting what is equivalent to thought, reasoning, judgment, imagination, volition, etc., are unconscious—as seems likely if not probable—then this converse does not hold true. This has some bearing on the validity of the doctrine; for if physical processes can perform substantially the same function as conscious intelligence it is difficult to reconcile this fact with what I may call naïve psycho-physical parallelism.

It is reconcilable, however, with psychic monism.

According to this doctrine it is not a question of parallelism at all. There is only one process—the psychical. The physical brain process is only an aspect or special mode of apprehending this one. All is psychical but not psychological. That which we apprehend in the form of the unconscious is really psychical and hence is capable of performing the same *kind* of function as it performs when it becomes psychological. It is not at all certain that unconscious processes may not comprise an intelligence possessing faculties identical in kind with those of conscious intelligence and indistinguishable from the latter. Subconscious processes may exhibit perception, cognition, reason, imagination, conation (will), feeling, etc., and it is possible that some of these processes may be correctly interpreted as unconscious. At any rate, from the point of view of monism, whether the real psychical process or, probably more correctly, how much of it shall emerge as a psychological state of consciousness depends upon intrinsic conditions. Though we cannot penetrate within them it is quite conceivable that it is a matter of complexity of synthesization and coöperative activity of psychical energies. This is a most interesting problem closely related to that of awareness and self-consciousness.

The meanings of the unconscious, subconscious, and co-conscious.—Though the term "unconscious" is in general use it has so many connotations derived from its various meanings in metaphysics, psychol-

ogy, and physiology that its use has given rise to considerable confusion of thought, particularly, I am compelled to believe, in the interpretation of specific psycho-physiological phenomena. Nevertheless, it has been so well established in our nomenclature that we could not replace it if we would. Nor is it wholly desirable to do so. It is a good and useful term, but I believe that with each advance in the precision of our knowledge we ought, so far as accumulative data permit, to give precision to the concept for which it stands. Just as in physical science we attempt to give precision to our concept of electricity in conformity with new data accumulated from time to time, so our psychological concepts should be defined and limited in accordance with the advance in knowledge. Some do not like to define the term, not being quite willing to commit themselves unreservedly to the complete acceptance of the physiological theory of memory and to cut adrift from the metaphysical concept of a subliminal mind. If the psycho-physiological theory of memory, which is now generally accepted, is sound, we have one meaning of the unconscious which is a very definite concept, namely, the brain residua, physiological "dispositions" or neurograms in which the experiences of life are conserved. These terms become, therefore, synonyms for the unconscious. That, under certain conditions, the passive neurograms may, under stimulation, become active and function unconsciously (i. e., without corresponding psychological equivalents being introduced

into the personal consciousness), need not invalidate the concept. We are then dealing with an unconscious and dynamic process. The effects of such functioning are simply the manifestations of the unconscious and may be recognized either in modifications of the stream of consciousness or in bodily disturbances. The term unconscious is an appropriate and descriptive term to characterize that which is devoid of the attributes of consciousness. This use of the term has been sanctioned by common usage.

Unfortunately, however, the term has been also employed to characterize another and distinct class of facts, namely *Co-*[*or Sub-*]*conscious Ideas.* We shall have occasion to study these psychological phenomena in other lectures.* We have seen examples in many of the phenomena I have cited. It is sufficient to say here, that as conceived of, and as we have seen, they are very *definite states of coconsciousness—a coexisting dissociated consciousness or coconsciousness of which the personal consciousness is not aware,* i. e., of which it is "unconscious." Hence they have been called "unconscious ideas" and have been included in the unconscious, particularly by German writers. But this is plainly using the term in a different sense—using it as a synonym for the longer phrase, "ideas we are unaware of," and not as a characterization of that which is physiological and non-psychological.

"Unconscious ideas" in this sense (the equiva-

* Not included in this volume.

lent of coconscious ideas) would include conscious states that we are not aware of simply because not in the focus of attention but in the fringe of the content of consciousness. The term would also include pathologically split-off and independently acting coconscious ideas or systems of ideas such as occur in hysteria, reaching their apogee in coconscious personalities and in automatic writings. Here we have a series of facts essentially different from the conceptual facts of physical residua, the form in which experiences are conceived to be conserved. Manifestly it is confusing and incorrect to define both by "the unconscious." And to speak of the former as "unconscious ideas" and of the latter as "unconscious," although technically correct, leads to confusion from using the term "unconscious" in two different senses.*

As a concept in a scheme of metaphysics, "unconscious ideas"—i. e., ideas of which we are not conscious, have long been recognized. Leibnitz was the first to maintain, on theoretical grounds and by *a priori* reasoning, the existence of ideas of which we are not aware, as did likewise Kant, influenced by Leibnitz, and later Schilling, and Herbart; while Hartmann evolved the unconscious into a biological and metaphysical system.†

* It has been objected that to speak of unconscious ideas is a contradiction of terms. This seems to me to smack of quibbling as we know well enough that the adjective is used in the sense of unawareness.

† For a good accounnt of the history of the theory of unconscious ideas in philosophy see Hartmann's "Philosophy of the Uncon-

By most American, English, and French psychologists such ideas, as conceived at least by Leibnitz, Kant, and Herbart, would to-day be called subconscious or coconscious ideas. Hartmann included all physiological processes of the nervous system in the Unconscious and ascribed to them special attributes (will, purpose, etc.). The Unconscious accordingly has connotations from which it is not easy to rid ourselves in dealing with it. It is generally agreed that it is desirable to have a term which shall cover all classes of facts—coconscious ideas, conserved experiences, and physiological proc-

scious,'' where the following quotations may be found: ''To have ideas and yet not to be conscious of them—there seems to be a contradiction in that—for how can we know that we have them if we are not conscious of them? Nevertheless, we may become aware indirectly that we have an idea, although we be not directly cognizant of the same.'' (Kant, Anthropology, sec. 5.) And again: ''Innumerable are the sensations and perceptions whereof we are not conscious although we must undoubtedly conclude that we have them, obscure ideas as they may be called (to be found in animals as well as in man). The clear ideas, indeed, are but an infinitely small fraction of these same exposed to consciousness. That only a few spots on the great chart of our minds are illuminated may well fill us with amazement in contemplating this nature of ours. (Ibid.)

''Now unconscious ideas'' are such ''as are in consciousness without our being aware of them'' (Herbart).

It is interesting to notice how Kant's statement might well be substituted for that of Myers' of his ''Subliminal.'' It is difficult to understand the peculiar antagonistic attitude of certain theoretical psychologists to the theory of subconscious (coconscious) ideas in view of the history of this theory in philosophy. They seem to have forgotten their philosophy and not to have kept pace with experimental psychology.

esses——without committal of opinion as to interpretation.*

It does not follow, however, that the term "unconscious" is the one that should be chosen. On the contrary, as unconscious has two distinct and different meanings (that pertaining to unawareness and that which is non-psychological) it is a very undesirable term if we wish to be precise in our terminology. That we should have a term which shall precisely define ideas which are not in awareness and which shall distinguish them from physiological processes is necessitated by the fact that such ideas in themselves form a distinct field of investigation.

The term "subconscious" is commonly used, excepting by German writers, to characterize these coconscious ideas. In fact, by some French medical writers, particularly Janet, it is very precisely limited to such ideas. By other authors it is employed in this sense and also to include the physical residua of experiences, and sometimes with the additional meaning of unconscious physiological neurograms, or processes, which it defines—in fact, to denote any conserved experience or process outside of consciousness. On the other hand, among these authors, some do not admit the validity of the concept of coconscious ideas, but interpret all so-called subconscious manifestations as the expression of the physiological functioning of physiological neurograms in which the experiences of life are conserved. Subconscious and unconscious are, there-

* See footnote on p. 149.

fore, quite commonly, but not always, employed as synonyms to define two or three different classes of facts. For practical reasons, as already stated, it is desirable to have a term which shall embrace all classes of facts, and of the two terms in common use, subconscious and unconscious, the former is preferable, as it is not subject to the double meaning above mentioned. I, therefore, use the term subconscious in a generic sense to *include* (*a*) *coconscious ideas or processes;* (*b*) *unconscious neurograms, and* (*c*) *unconscious processes.* Of course it is only a matter of terminology. The conceptual facts may then be thus classified:

- The subconscious
  - The coconscious (synonym: subconscious ideas.)
  - The unconscious
    - a: Conserved dormant neurograms or neural dispositions.
    - b: Active functioning neurograms or neural processes. (synonym: unconscious processes.)

Subconscious as an adjective used to qualify ideas is plainly equivalent to coconscious ideas. This terminology I have found useful in keeping the different classes of conceptual facts separate in my mind and I believe it will prove to be equally useful to others. With the conceptual facts clearly differentiated it will be generally easy to recognize the various senses in which the terms are used when found in the writings of others.

The unconscious as a fundamental of personality.—A survey of all the facts and their relations, which I have outlined in the preceding lectures, brings into strong relief the important principle that no matter in what state complexes of ideas are formed, so long as they are conserved, they become a part of our personality. They become dormant, but, being conserved, they may under favorable conditions be awakened and enter our conscious life. It matters not whether complexes of ideas have been formed in our personal consciousness, or in a state of hypnosis, in dreams, in conditions of dissociated personality, in coconsciousness, or any other dissociated state. They all become parts of ourselves and may afterwards be revived under favoring conditions, whether volitionally, automatically, by artificial devices, by involuntary stimuli, or other agencies. They may or may not be subject to voluntary recall as recollections, but, so long as they form part of our dormant consciousness as physiological neurograms, they belong to the personal self. "After

all,'' as Miss B. used to say, and correctly, referring to her different dissociated personalities, BI, B III, and BIV, ''after all, they are all myself.'' It makes no difference in what state an experience has occurred. A potential memory of it may persist and may, in one way or another, be revived, no matter how or when it originated.

Through the conception of the *sub*conscious as resolvable, on the one hand, into the *un*conscious, passive or active physiological dispositions, and, on the other hand, into *co*active conscious states, the subconscious becomes simplified and intelligible. It offers a basis on which may be constructed comprehensible theories of memory, suggestibility, post-hypnotic phenomena, dreams, automatic writing and similar phenomena, artificial hallucinations, the protean phenomena of hysteria, and the psychoneuroses, as well as the mechanism of thought. It enables us also to construct a rational concept of personality and self. As we shall see, when we take up the study of multiple personality in later lectures, out of the aggregate of the accumulated and varied experience of the past conserved in the unconscious may be constructed a number of different personalities, each depending upon a synthesis and rearrangement of life's neurograms and innate dispositions and instincts. All dormant ideas with their feeling tones and conative tendencies belong to our personality, but they may be arranged with varying instincts and innate dispositions into a number of differentiated systems, each synthesized into a cor-

responding personality. In the unconscious may be conserved a vast number of life's experiences ranging in time almost from the cradle to the grave. The hopes, the wishes, the anxieties of childhood may still be there, lying fallow, but capable of injecting themselves under favoring conditions into our personalities. Properly speaking, from this point of view, aside from certain artificial and pathological conditions, there is, *normally,* no distinct "subconscious *self,*" or "subliminal *self,*" or "secondary *self,*" or "hidden *self.*" In artificial and pathological conditions there may be, as has been frequently shown, a splitting of consciousness and the aggregation into a secondary coconscious system of large systems of ideas which have all the characteristics of personality. This secondary personality (of which the primary personality is not aware) may have its own memories, feelings, perceptions, and thoughts. It may appropriate to itself various complexes of neurograms deposited by the experiences of life which are not at the disposal of the principal personality. Such a coconscious system may properly be spoken of as a subconscious *self.* But there is no evidence that, *normally,* such systems exist. All that we are entitled to affirm is that every individual's consciousness may include ideas of which he is not aware, and that he has at his disposal, to a greater or less extent, a large unconscious storehouse in which are neurographically conserved a large and varied mass of life's experiences. These experiences may be arranged

in systems, as we shall see in the next lecture, but they do not constitute a "self." To speak of them as a subconscious, subliminal, secondary, or hidden self is to construct concepts which are allegories, metaphors, symbolisms, personifications of concrete phenomena. Their use tends to fallacious reasoning and to perverted inductions from the facts. Becoming major premises in a syllogism they lead to erroneous interpretations of the simplest facts, just as fixed ideas or obsessions tend to a perverted interpretation of the environment.

We are now in a position to see that the psychophysiological theory of memory has a far-reaching significance. The facts which have been brought before you in evidence of the theory have been selected largely from those which were capable of verification by experimentation and by other objective testimony. They include a large variety of experiences which occurred in pathological conditions like amnesia and multiple personality, and in artificial conditions like hypnosis and intoxication. Such abnormal conditions enable us to show by testimony, independent of the individual, that these experiences had actually occurred, and, therefore, to show that the reproductions of these experiences were in principle truthful memories. They also enable us to appreciate the enormous variety and quantity of experiences which, although absolutely beyond the power of voluntary recall, may be conserved nevertheless as neurograms, and also to ap-

preciate the minuteness of detail in which the brain records may be preserved.

If you will stop a moment to think, and give play to your imagination, you will see that the principle of the neurographic conservation of experiences must be true not only of our outer life, of our experiences with our environment, but of our whole *inner life,* normal as well as abnormal. It is always possible that any thought, any feeling, however trivial and transitory, may leave neurograms in the brain. It is always possible that even a fleeting doubt or scruple, thoughts which flash into the mind and straightway are put out again, all may leave their records and dispositions to function again. Even a passing doubt which any of you may entertain regarding the interpretation of the phenomena I have described, and the correctness of our conclusions, may be recorded. Indeed, it is a matter of some importance for the understanding of obnormal mental conditions that many of those horrid little sneaking thoughts which we do not like to admit to ourselves, the thoughts which for one reason or another we endeavor to repress, to put out of our minds, may leave their indelible traces. In fact, these are the very thoughts, the ones which we try hardest to forget, to push aside, which are most likely to be conserved. The harder we try, the stronger the feelings attached to them, the more likely they are to leave neurograms in the brain though they may never be reproduced. This has been shown by observation of pathological condi-

tions, like hysteria and psychasthenia, and by experimentation. In repressing our thoughts we do not put them out of our minds, but, as the subject previously cited, who in hypnosis could recall such repressed thoughts, said, we put them *into* our minds. In other words, we conserve them as neurograms.

In one sense, I suppose, we may say that every one leads a double life. Let me hasten to say to you, I mean this not in a moral but in an intellectual sense. Every one's mental life may fairly be said to be divided between those ideas, thoughts, and feelings which he receives from and gives out to his social world, the social environment in which he lives, and those which belong more properly to his inner life and the innermost sanctuary of his personality and character. The former include the activities and the educational acquisitions which he seeks to cultivate and conserve for future use. The latter include the more intimate communings with himself, the doubts and fears and scruples pertaining to the moral, religious, and other problems of life, and the struggles and trials and difficulties which beset its paths; the internal contests with the temptations of the world, the flesh, and the devil. The conventionalities of the social organization require that the outward expression of many of these should be put under restraint. Indeed, society insists that some, the sexual strivings, are aspects of life and human nature which are not to be spoken or thought of. Now, of course, this inner life must also leave its neurographic tracings along with the

outer life, and must, potentially at least, become a part of our personality, liable to manifest itself in character and in other directions. But, more than this, abnormal psychology, through its technical methods of investigation and through the perverted manifestations exhibited in sick conditions of mind and body, has shown us that the neurograms deposited as the experiences of this inner life may flower, to use an expression of the lamented William James, below the threshold of consciousness, and, under certain conditions, where the mind is in unstable equilibrium, burst forth in mental and bodily manifestations of an unusual character. Thus in processes of this kind we find an explanation of religious phenomena like sudden conversion; of dreams and of certain pathological phenomena like the hallucinations, deliria, crises, and bodily manifestations of hysteria, and the numerous automatic phenomena of spiritualistic mediums. Such phenomena may then be interpreted as the *flowering or functioning of the unconscious.*

The essential difference in the consequences which follow from this psycho-physiological conception of memory, based as it is on the unconscious, and those which follow from that conception which is popularly held must be obvious. According to popular understanding the mental life which we have outlived, the life which we have put behind us, whether that of childhood or of passing phases of adult life, is only an ephemeral, evanescent phase of consciousness which once out of mind, put aside or forgotten,

need no longer be taken into consideration as pertaining to, much less influencing, our personality. Writers of fiction who undertake to depict human nature almost invariably, I believe, are governed by this point of view. They describe their characters as throwing overboard their past, their dominating beliefs, convictions, and other traits as easily as we should toss undesirable refuse into the ocean. Their heroes and heroines jettison their psychological cargoes as if they were barrels of molasses whenever their personalities show signs of going down in the storms of life's experiences. According to this view, which is derived from an imperfect conception of mental processes, any passing phase of consciousness ceases to have potential existence or influence as soon as it is forgotten, or as soon as it ceases to be a consciously dominating belief or motive of life. It is assumed that so long as we do not bring it back into consciousness it belongs to us no more than as if it had originated in the mind of another, or had taken flight on the wings of a dove. This is true in part only. A phase of consciousness may not be conserved, or it may become so modified by the clash with new experiences that a rearrangement of its elements takes place and it becomes, for instance, a new motive or belief, or a new setting to give a new meaning to an idea. On the other hand, any passing phase may, as we have seen, still belong to our personality even though it lies hidden in its depths. That we no longer recall it, bring it voluntarily into the field of our personal

consciousness, does not negative its continuing (though dormant) existence, and its further influence upon the personality through the subconscious workings of the mind.

In conclusion, and by way of partial recapitulation, we may say, first: The records of our lives are written in unconscious dormant complexes and therein conserved so long as the residua retain their dynamic potentialities. It is the unconscious, rather than the conscious, which is the important factor in personality and intelligence. The unconscious furnishes the formative material out of which our judgments, our beliefs, our ideals, and our characters are shaped.

In the second place, the unconscious, besides being a *static* storehouse, has *dynamic* functions. It is evident that, theoretically, if unconscious complexes are once formed they may, under favoring conditions of the psycho-physical organism, become revived and play an important part in pathological mental life. If through dissociation they could be freed from the normal inhibition and the counterbalancing influences of the normal mental mechanism, and given an independence and freedom from voluntary control, they might, by functioning, produce abnormal states like fixed ideas, delusions, automatisms, hallucinations, etc. A study of such abnormal phenomena confirms this theoretical view and finds in this conception of the unconscious an explanation of the origin of many of them. The hallucinations and bizarre notions and delusions of

the insane, the hysteric, and psychasthenic, where all seems chaos, without law or order, are often due to the resurrection and fabricating effect of unconscious complexes formed by the earlier experiences of the patient's life. Of course, the mechanism by which such phenomena are produced is a complicated one about which there is much difference of opinion and which we cannot enter into here. In post-hypnotic phenomena and artificial hallucinations we have experimental examples of the principle.

More than this, and more important, there is considerable evidence going to show that conserved experiences functioning as subconscious processes take part in and determine the conscious processes of everyday life. On the one hand stored neurograms may undergo subconscious incubation, assimilating the material deposited by the varied experiences of life to finally burst forth in ripened judgments, beliefs, and convictions, as is so strikingly shown in sudden religious conversions and allied mental manifestations. Through a similar incubating process, the stored material needed for the solution of baffling problems is gathered together and oftentimes assimilated and arranged and formulated as an answer to the question. On the other hand, subconscious processes may be but a hidden part of that mechanism which determines our everyday judgment and our points of view, our attitudes of mind, the meanings of our ideas, and the traits of our characters. Antecedent experiences function-

ing as such processes may determine our fantasies and our dreams. Thus functioning as dynamic processes the stored residua of the past may provide the secrets of our moods, our impulses, our prejudices, our beliefs, and our judgments.

It remains, however, for future investigation to determine the exact mechanism and the relative extent to which subconscious processes play their parts.

LECTURE IX

THE ORGANIZATION OF UNCONSCIOUS COMPLEXES

Everyday life.—It will be well at this point to state in orderly fashion a few general principles governing the organization of complexes or syntheses of ideas * which, as we shall see, play an important part in normal and abnormal life. Although this statement will be little more than descriptive of what is common experience it will be helpful in classifying and obtaining a useful perspective of the phenomena with which we shall deal.

Now, as every one knows, the elemental ideas which make up the experience of any given moment tend to become organized (i. e., synthesized and conserved) into a system or complex of ideas, linked with emotions, feelings and other innate dispositions, so that when one of the ideas belonging to the experience comes to mind the experience as a whole is recalled. We may conveniently term such a system when in a state of conservation, an *unconscious*

* I am using this word in the general sense of any mental experience as in the common phrase, "the association of ideas," and not in the restricted sense of Titchener as the equivalent of a perception.

complex * *or neurogram, or system of neurograms.* If we wish to use psychological terms we may speak of it as a complex or synthesis of dormant ideas. Although we may formulate this principle as the "association of ideas" the formula can have only a descriptive significance pertaining to a relation in time (and not a causal one) unless there be included an unconscious factor by which the association becomes effective in exciting one idea through another —i. e., through a linking of neural dispositions. We cannot conceive of any conscious relation between ideas that can possibly induce this effect. It must be some *unconscious dynamic relation* † and be explained in terms of neural dispositions. If this be so, all ideas are dynamically associated and related in a process which does not appear in consciousness and which is essential for organization into a complex. Every system of associated ideas, therefore, implies conservation through an organized unconscious complex.

Complexes may be very feebly organized in that the elemental ideas are weakly conserved or weakly associated; in which case when we try to recall the original experience only a part or none of it is recalled.

On the other hand, a complex may be strongly

* I use this word "complex" in the general sense in which it is commonly used and not with the specific meaning given to it by the Zurich school, which limits it to a system of ideas to which a strong affective tone is attached and which, because of its personally distressing character, is repressed into the subconscious.

† Which may be psychical, although not psychological.

organized and include a large number of details of an experience. This is usually owing to the fact that the original experience was accompanied by strong emotional tones, or by marked interest and attention, or was frequently repeated.

Emotional Complexes: 1. When the original experience was accompanied by an emotion it may be regarded as having excited one or more of the emotional instincts of anger, fear, disgust, etc. The excitation of the instinct or instincts is in one sense a *reaction* to the ideas of the experience. The instincts then become organized about one or more of the ideas to form a sentiment (Shand) and the whole is incorporated in a complex which then acquires an affective character. The impulsive force of the instinct thereafter largely determines the behavior of the complex. (To this we shall return later when we consider the instincts.) General observation shows that emotional experiences are more likely to be conserved and also voluntarily recalled. Given such an emotional complex nearly anything associated with some detail of the experience may, by the law of association, automatically or involuntarily revive it, or the emotional reaction with a greater or less number of its associated memories. This tendency seems to be directly proportionate to the intensity of the instinct (fear, anger, etc.) incorporated in the complex. Sometimes, it is true, a strongly emotional experience, even an experience of great moment in an individual's life, is completely

forgotten, so completely that no associated idea avails as a stimulus to awaken it. Usually in all such cases the neurograms are isolated, etc., by dissociation. They still, however, may be strongly organized and conserved as an unconscious complex and sometimes may be excited as a subconscious process by an associated stimulus. In such conditions it very frequently is found that the dissociation is due to conflict between the emotion belonging to the complex and another emotional complex. The impulsive force of the latter dissociates the former complex which then cannot be voluntarily reproduced as memory, nor awakened by any association under normal conditions. We have then a condition of amnesia and often an hysterical condition. To this important phenomenon we shall return when we consider the emotions. Passing over these exceptional conditions of conflicting emotions (which being explained "prove the rule"), it still remains true that in everyday life emotional experiences are not only more likely to be conserved but to be subject to voluntary recall, or awakened involuntarily by an associated stimulus.

If, for instance, we have experienced a railroad accident involving exciting incidents, loss of life, etc., the words "railroad," "accident," "death," or a sudden crashing sound, or the sight of blood, or even riding in a railroad train may recall the experience, or at least the prominent features in it. The earlier events and those succeeding the accident may have passed out of all possibility of voluntary

recall. To take an instance commonplace enough, but which happens to have come within my recent observation: a fireman, hurrying to a fire, was injured severely by being thrown from a hose-wagon against a telegraph-pole with which the wagon collided. He narrowly escaped death. Although three years have elapsed he still cannot ride on a wagon to a fire without the memory of substantially the whole accident rising in his mind. When he does so he again lives through the accident, including the thoughts just previous to the actual collision when realizing his situation he was overcome with terror, and he again manifests all the organic physical expressions of fear, viz., perspiration, tremor, and muscular weakness. Here is a well organized and fairly limited complex. It is also plainly an imperative memory, that is to say, any stimulus-idea associated with some element in the complex reproduces the experience as memory whether it is wished or not. Try as hard as he will he cannot prevent its recurrence. The stimulus that excites such involuntary memories may be a spoken word (as in the psychogalvanic and other associative experiments which we shall consider in a later lecture), or it may be a visual perception of the environment—of a person or place—or it may be a repetition of the circumstances attending the original experience, however induced. The phenomenon may also be regarded as an automatism or automatic process. As the biological instinct of fear is incorporated in the complex it is also a *phobia.*

Why our fireman suffered the intense terror that he did at the time of the accident, why he experienced the thoughts which surged into his mind, why he suffered this emotional experience, while another man going through the same accident suffers no more than the physical injury (if any) at the time, and why the experience continues to recur as an imperative memory are problems which we are not considering now. The fact is that he did suffer the terror and its agonizing thoughts, and, this being the case, their constant recurrence, i. e., the reproduction of the experience, is a memory. And this memory consists of a well organized complex of ideas, feelings, and physiological accompaniments. I emphasize this point because an imperatively recurring mental experience of this sort is a psychosis, and, so far as the principle of memory enters into it, so far memory becomes a part of the mechanism of obsessions.

The reason why the man at the moment of the accident experienced the terrorizing thoughts that he did, and why he continued to experience them, must be sought in associated conserved experiences of his past. These experiences were the psychogenetic factors. It would take us too far out of the way to consider this problem, which belongs to the obsessions, at this time, but, as I have touched upon it, I may say in passing that the accident would have awakened no sense of terror and no emotional shock if a *psychological torch* had not already been prepared. This torch was made up of ideas previously

imbibed from the social environment and made ready to be set aflame by the match set to it by the accident. In the unconsciousness of this man were written in neurographic records the dangers attending accidents of this kind and dangers which still threatened his present and future.

Likewise the *insistence* of the memory can be related to a setting of associated thoughts which gave meaning to his perception of himself as one affected, as he believed, with a serious injury threatening his future. His fear was also, therefore, a fear of the present and future. Thus not only the experiences of the accident itself became organized into a group and conserved as a memory, but were organized with memories of still other experiences which stood in a genetic relation to them. If it were necessary I could give from my personal observation numerous examples of this mode of organization of complexes through emotional experiences and of their reproduction as automatic memories.

An historical example of complex-organizing of this kind is narrated in Tallentyre's delightful life of Voltaire. Toward the end of Voltaire's famous residence at the court of Frederick the Great, as the latter's guest, one of those pestiferous friends who cannot help repeating disagreeable personal gossip for our benefit swore to Voltaire to having heard Frederick remark, "I shall want him (Voltaire) at the most another year; one squeezes the orange and throws away the rind." From that mo-

ment a complex of emotional ideas was formed in Voltaire's mind, that, do what he would, he could not get rid of. He wrote it to his friends, thought about it, dreamed about it; he tried to forget it, but to no purpose; it would not "down"; the rind kept constantly rising. It brought with it every memory of Frederick's character and actions that fitted the remark.

Voltaire, like many men of genius, was a neurasthenic and his ideas with strong emotional tones tended to become strongly organized and acquire great force. "The orange rind haunts my dreams," he wrote; "I try not to believe it. . . . We go to sup with the king and are gay enough sometimes;—the man who fell from the top of a steeple and found the fall through the air soft and said, 'Good, provided it lasts,' is not a little as I am." The emotional complex which so tormented Voltaire that it literally became an obsession was a recurring memory. The experience had been strongly registered and conserved, owing to the emotional tone, but the reason *why* there was so much emotion, and *why* it absorbed so many associated ideas into itself and kept recurring would undoubtedly have been found to lie, if we could have probed Voltaire's mind, in its settings—his previous stormy experiences with Frederick, his knowledge of Frederick's character, his previous *apprehensions* of what later actually occurred, and, most probably, self-reproach for his own behavior, *the consequences of which he feared to face.* All this, conserved as neurograms, was set

ablaze by the remark and furnished not only the emotion but the material for the content of the complex. These previous experiences, therefore, stood in genetic relation to the latter, excited the emotional reaction of anger, resentment and fear, and prevented the complex from subsiding. The exciting cause for each recurrence of the complex was, of course, some associated stimulus from the environment, or train of thought.

Another interesting historical example is the foolish complex which is said to have disturbed the pretty Mme. Leclerc (Pauline Bonaparte, who was afterward the Princess Borghese). This fascinating and beautiful woman was enjoying her triumph at a ball. Seated in a little boudoir off the ballroom she was entertaining "guests who came to admire her and fill her cup to overflowing. There was, however, a Mme. de Contades, who had been deserted by her own cavaliers at the appearance of Pauline. Approaching, now. on the arm of her escort, she said in a tone sufficiently loud so that every one, including Pauline, could hear perfectly: 'Mon Dieu, what a misfortune! Oh, what a pity! She would be so pretty but for that!' 'But for what?' asked her cavalier. All eyes were turned upon poor Mme. Leclerc, who thought there must be something the matter with her coiffure and began to redden and suffocate. 'But do you not see what I mean?' persisted Mme. de Contades, with the cold cruelty of a jealous woman. 'What a pity! Yes, truly, how unfortunate! Such a really pretty

head to have such ears! If I had ears like those I would have them cut off. Yes, positively, they are like those of a pug dog. You who know her, Monsieur, advise her to have it done; it would be a charitable act.' Pauline, more beautiful than ever in her blushes, rose, tears blinding her eyes, then sank back upon the sofa, hiding her face in her hands, sick with mortification and shame. As a matter of fact, her ears were not ugly, only a little too flat. From that day, however, she always dressed her hair over them or concealed them under a bandeau, as in the well-known painting of her.'' *

Fixed ideas relating to physical blemishes are not uncommonly observed as obsessions in psychasthenics. With our knowledge of such psychical manifestations it is easy to imagine Pauline's antecedent thoughts regarding her own flat ears, and repugnance to this defect in others, her suspicions of unfavorable criticisms and of not being admired, etc., all organized with the instinct of self-abasement (emotion of subjection) and forming a sentiment of self-depreciation and shame in her mind.

2. The outbreak of such *automatic memories* is particularly prone to occur in persons of a particular temperament (the apprehensive temperament, in which the biological instinct of fear is the paramount factor), in fatigue states, and in so-called neurotic people—neurasthenics, psychasthenics, and hysterics. In such people the organization of the complex probably has been largely a previously *subcon-*

* Sisters of Napoleon, by M. Joseph Turquan.

scious incubating process, as in the phenomenon of "sudden religious conversion." Later the sudden suggestion or awakening by whatsoever means of an idea, which has roots in the antecedent thoughts engaged in the subconscious process, readily gives occasion for the outbreak of the complex. The latter then excites the emotional reaction of anger, horror, antipathy, fear, jealousy, etc., which becomes incorporated in the complex. When once formed the automatism becomes the psychosis. The following case is an illustration:

L. E. W., forty-nine years of age, farmer and lawyer by occupation, a man of strenuous disposition, broke down under stress and strain with severe but common symptoms of mental and physical fatigue modified and exaggerated by apprehensions of incurable illness. At the end of a year there developed scruples and jealous suspicions of his wife's chastity, not persistent but recurring from time to time in attacks, and always awakened by a suggestion of some kind—an associated idea, a remark heard, an act of some kind on the part of the wife, etc. Between the attacks he was entirely free from such thoughts, but during the attack, which came on with the usual suddenness, these thoughts—always the same doubts, suspicions, reasonings, jealousy, and fear—were dominating, imperative, and painful. An open-minded, frank, intelligent man he fully realized that his scruples were entirely unfounded and even characterized them as

"delusions." It was interesting, so clear was he in this respect, to hear him discuss his attacks between times with his wife, as if they were recurrent appendicitis. The attacks would pass off in a short time after discussing his scruples with his wife, and then he became natural again; they involved great suffering and he feared, as people thus afflicted so often do, that they spelled impending insanity. And yet it was easy to determine that they were only *imperative recurrent memories,* conserved complexes emerging from the unconscious. He had been married twenty-two years. He was of a jealous nature, and before marriage it annoyed him to think that his wife had been courted by other men, that she wrote them letters, etc. He began to think of her as a flirt, that she was going to jilt him, and to have misgivings of her character. He grew jealous and suspicions of possible unchastity worried him, but reasoning with himself he would say, "O, pshaw! it is an abominable suspicion," "an hallucination," and put the thought out of his mind, as he said. But we know he really put the thought *into* his mind to be conserved in the unconscious, as a complex of chastity scruples, and there undergo incubation and further development. Later he had had spells of jealousy during his married life but no true imperative ideas until he broke down in health, and then, as he himself expressed it, "the devil got the upper hand and said, 'I've got you now.' "

The devil was the complex organized twenty-two

years previously with the emotion of jealousy * centered about the idea of his wife and the whole neurographically conserved. The impulsive force of the emotion was constantly striving to awaken and give expression to the unconscious complex. He was able to hold it in check, to repress it, by the conflicting force of other sentiments until these became weakened by the development of the psychasthenic state. Then these latter controlling elements of personality were repressed in turn whenever the more powerful jealousy complex was awakened. The whole mechanism was undoubtedly more complicated than this, in that the jealousy complex had a setting in certain unsophisticated and puritanical ideas of conduct (brought to light in the analysis) which gave a peculiar meaning (for him) to his wife's actions. So long as this setting persisted it would be next to impossible to modify the jealousy complex.

Whatever the mechanism, ideas with strong emotional tones (particularly fear, anger, jealousy, and disgust), no matter how absurd or repellent, or unjustified, and whether acceptable or unacceptable, tend to become organized and welded into a complex which is thereby conserved. The impulsive force of the incorporated emotion tends to awaken and give expression to the complex whenever stimulated. The recurrence of such an organized complex

* McDougall (Social Psychology) regards jealousy as a complex emotional state in which anger, tender emotion, and other innate dispositions are factors.

so far as it is reproduction is, of course, in principle, memory, and an imperative memory or *fixed idea.* Whether the complex shall be awakened as such a recurrent memory, or shall function as a dissociated subconscious process, producing other disturbances, or remain quiescent in the unconscious, depends upon other factors which we need not now consider.

3. Clinically the *periodic recurrence* of such complexes is an *obsession.* An obsession *as met with* is most likely to be characterized by fear not only because the instinct of fear is the most painful of the emotions, but for another reason. Although biologically fear is useful as a defense for the preservation of the individual, when perverted by useless associations it becomes harmful, in that it is not only painful but prevents the adjustment of the individual to his environment and thereby takes on a pathological taint. Complexes with other emotions are less likely to be harmful and therefore less frequently apply for relief. Yet imperative ideas with jealousy, anger, hatred, love, disgust, etc., centered about an object are exceedingly common though their possessors less often resort to a physician.

From another point of view abnormal complexes, represented by these examples, may be regarded as "*association psychoses.*" Sometimes the physiological bodily accompaniments form the greater part of the complex which is for the most part made up of physiological disturbances (vasomotor, cardiac, gastric, respiratory, secretory, muscular, etc.); al-

most pure association *neuroses* they then become. Neuroses of this kind we shall consider in a later lecture.*

Sometimes, particularly in people of intensive temperaments, "imperative ideas" are formed by gradual evolution in consequence of the mind constantly dwelling with emotional intensity on certain phases of thought—i. e., through repetition. This we see in the development of religious complexes or faiths, but it is also obtrusive in other fields of thought, political, industrial, social, etc. Hence the evolution of *fanatics*. A. D. is a man of strong feeling and great imagination. As a child he was a constant witness of quarrels between his father and mother. His mind dwelt upon these experiences and there developed in him at an early date strong aversions toward marriage. Aversion means the instinct of repulsion or disgust. This instinct therefore became systematized with the idea of marriage as its object forming an intense sentiment of aversion. Even as a boy the aversion impelled him to determine never to marry and later he formed strong theoretical anti-matrimonial views which became almost a religion. For years he talked about his views, argued and preached about them like a fanatic to his friends. His aversion rose in successful conflict against every temptation to matrimony and his anti-matrimonial complex became an obsession. The consequences were what might have been expected when, later in life, he al-

* Not included in this volume.

lowed himself in a moment of sympathetic weakness and owing to compromising situations to slip within the matrimonial noose. The complex then, like that of Voltaire's orange rind, would not down at his own bidding, or at that of his devoted spouse for whom he had, in other respects, a strong affection mingled with personal admiration. The resulting situation can be imagined.

5. *Hysterical attacks.* It is of practical importance to note another part which emotional complexes may play in psychopathology. In certain pathological conditions in which there is limitation of the field of consciousness (involving a disappearance of a large part of the normal mental life) often all that persists of consciousness and represents the personal self is the obsessing complex which previously tormented the patient. In hysterical crises, psycholeptic attacks, trance, and certain types of epilepsy this is peculiarly the case. In these states the content of consciousness consists almost wholly, or at least largely, of a recurrent memory of an experience which originated in the normal life and which has been conserved in the unconscious. Here the obsessing ideas, which at one time were voluntarily entertained by the subject, or, as frequently happens, originated in some emotional experience, automatically recur, while the remainder of the conscious life becomes dissociated and suppressed; in other words the obsessing ideas emerge out of the unconscious (neurograms) and became

substantially the whole conscious field. In hysterical attacks, particularly, the complex is accompanied by the same strong emotional tone—such as fear, anxiety, jealousy, or anger—which belonged to the original experience. In such pathological subjects, whenever the complex is awakened, the remainder of the conscious field tends to become dissociated and the psychological state to be reproduced. Hence, in such states, the ideas repeat themselves over and over again with the recurrence of the attacks. The subject lives over again as in a dream the original attack, which is a stereotyped revivification of the original experience. This peculiarity of the mental condition in attacks has been described by various writers. The dream of the hystero-epileptic is substantially always the same. Janet has accurately described the origin and rôle of the fixed ideas in the hysterical attack. "These ideas," he says, "are not conceived, invented at the moment; they formulate themselves; they are only *repetitions*. Thus, the most important of the hallucinations which harassed Marcelle during her cloud-attack was but the exact reproduction of a scene which had taken place the previous year. The fixed ideas of dying, of not eating, are the reproduction of certain desperate resolutions taken some years ago. Formerly these ideas had some sense, were more or less well connected with a motive. A desperate love affair had been the cause of her attempts at suicide; she refused to eat in order to let herself die of hunger, etc. To-day these ideas are again

reproduced, but without connection and without reason. She has, we convinced ourselves, completely forgotten her old despair, and has not the least wish to die. The idea of suicide comes to her to-day without any relation to her present situation, and she is in despair at the idea of this suicide which imposes itself on her as a relic of her past, so to say. She does not know why she refuses to eat; the ideas of suicide and refusal of food are dissociated. The one exists without the other. At one moment she hears the voice, 'Do not eat,' and yet she has no thought of death; at another, she thinks of killing herself and yet she accepts nourishment. We always find in fixed ideas this characteristic of automatic repetition of the past without "connection, without actual logic." *

When certain emotional and distressing ideas of wounded love are awakened in M. C., an hysteric, she is thrown into an hysterical attack in which these ideas recur over and over again and dominate consciousness. In P. M., another hysteric, ideas of loneliness and jealousy, which had previously been entertained but which had been thrust out of her mind again and again in a conscientious struggle with her moral nature, recur, emerge from the unconscious and dominate the field of consciousness in each hysterical attack which they induce.

6. In the *psycholeptic,* a variant of the hysteric, the same sensations, motor phenomena, and hallucina-

* Aboulie et idées fixes, Revue philosophique, 1891, i., p. 279. Mental State of Hystericals, p. 408.

tions, and the same bizarre ideas—whatever the symptomatic phenomena—characterize each attack. This could be shown experimentally in M——l.*

Of course the degree of dissociation of consciousness, the content of the fixed idea, and the physiological manifestations vary in individual cases, according to the nature of the case. Sometimes the disturbance of consciousness is slight and the physiological manifestations predominant.

From a consideration of all the facts we see that a conserved complex associated with strong feeling tones may play a disastrous and pathological part in certain individuals.

It is well to bear in mind here, as before, that in these statements we are only giving a literal description of the psychological events without attempt to form any theory of the mechanism of the processes, or the antecedent psychogenetic factors which lead to the development of the particular fixed ideas or complexes. About this there may be and is a difference of view.

Systematized Complexes. In contrast with the limited group of fixed ideas, organized with one or more emotions (i. e., instincts) I have been describing, are the large *systems* of complexes or associated experiences which become organized and fairly distinctly differentiated in the course of the development of every one's personality. In many, at least, of these systems there will be found a predominant

* P. 33.

emotion and certain instinctive tendencies, and a predominant feeling tone—of pleasure or pain, of exaltation or depression, etc. It is quite possible that careful investigation would disclose that it is this conflicting affective force which is responsible for the differentiation of one system from another with opposing affects and tendencies. The differentiation of such systematized complexes is of considerable practical importance for normal and abnormal personality. Among such systems may here be mentioned those which are related to certain *subjects* or departments of human experience, or are related in *time,* or to certain dispositions or *moods* of the individual. The first may be called *subject* systems, the second *chronological* systems, and the last *mood* systems.

1. *Subject systems:* I find myself interested, for instance, in several fields of human knowledge; (a) abnormal psychology; (b) public franchises; (c) yachting; (d) local politics; (e) business affairs. To each of these I give a large amount of thought, accumulate many data belonging to each, and devote a considerable amount of active work to carrying into effect my ideas in each field. Five large systems are thus formed, each consisting of facts, opinions, memories, experiences, etc., distinct from those belonging to the others. To each there is an emotion and a feeling tone which have more or less distinctive qualities; these coming from the intellectual interest of abnormal psychology differing

qualitatively from those of the "joy of battle" excited by a public contest with a railroad corporation or gas company, as it does from that of the exhilarating sport of a yacht race, or from the annoying and rather depressing care of business interests; and so on.

These five subject-complexes do not form independent automatisms or isolated systems which may intrude themselves in any conscious field, but comprise large associations, memories of experiences in a special field of thought. Within that field the ideas of the system are no more strongly organized than are ideas in general; but it can be recognized that the system as a whole with its affective tones is fairly well delimited from the other complexes of other spheres of thought. It is difficult, for certain individuals at least, to introduce the associations of one subject-complex into the focus of attention so long as another is invested with personal interest and occupies the attention of consciousness. They find it difficult to switch * their minds from one subject to another and back again. On the other hand, it is said of Napoleon that he had all the subjects of his experiences arranged in drawers of his mind, and that he could open each drawer at will, take out

* The switching process is an interesting problem in itself. (Cf. Max Levy-Suhl: Ueber Einstellungsvorgänge in normalen und anormalen Seelenzuständen. Zeitschrift für Psychotherapie und Medizinishe Psychologie, Bd. 11, Hft. 3, 1910.) An example is the well-known psychological diagram which may be perceived at one moment as a flight of steps and at another as an overhanging wall, according as which perception of the same line is switched in.

any subject he wished, and shut it up again as he wished. Ability of this kind involves remarkable control over the mind and is not given to all.

I have frequently made observations like the following on myself, showing the organization and differentiation of systems: I collect the various data belonging to one of the problems discussed in these lectures. I arrange all in an orderly fashion in my mind, work out the logical relations and the conclusions to which they lead, as well as their relations to other data and problems. The whole is then schematically arranged on paper to await proper elaboration the next morning, when it will be written out on waking, the preliminary mental arrangement having been done at night. A large complex has been created, the various details of which are luminously clear and the sequence of the ideas vividly conceived, the conclusions definite. There is, further, an affective tone of joy and exaltation which is apt to accompany the accomplishment of an intellectual problem and which produces a feeling of increased energy.

The next morning, as I awake and gradually return to full consciousness, another and very different kind of complex almost exclusively fills my mind, owing probably to the fatigue following the previous night's work. All sorts of gloomy thoughts, memories of experiences better forgotten, course through the mind; and entirely different emotions (instincts), and a strong feeling of depression dominate the mental panorama. The whole—ideas, emo-

tions, and feelings—makes a complex which has been experienced over and over again, and is recognized as such. The same old ideas, emotions, thoughts, and memories, conserved as neurograms, repeat themselves almost in stereotyped fashion. The mental complex has completely changed and the exuberant energy of the night before has given place to listless inertia.

All this is commonplace enough, merely morning depression you will say, due to fatigue; and so it is. But mark the sequel.

I now remember that I have a task to perform and before rising take paper and pencil, lying ready at my side, to write out the theme previously arranged in skeleton. But to my surprise I find that it cannot be recalled. To be sure, I can, by effort of will, recall individual facts, but the facts have lost their associations and meaning, they remain comparatively isolated in memory; all their correlated ramifications, their associated ideas and relations, which the night before stood out in relief and crowded into consciousness, have gone. The emotional tone and impulses which energized the thoughts have also disappeared, and with them the system of complexes as a whole. It has been dissociated, inhibited, repressed, and there is *amnesia* for it. With the fatigue depression a new system, with different emotions and feelings, now dominates the mind and the desired system cannot be switched in.

This amnesia is not one of conservation but one of reproduction; for later in the day the fatigue and

depression disappear, a new energizing emotional tone arises and the sought-for system is switched in and returns in its entirety. With this change the depression system in turn disappears, and now it is difficult to recall it, excepting that as an intellectual fact I remember that such thoughts occupied my mind in the early morning hours. The two systems as a whole are distinctly differentiated from and alternate with one another.

All this is only expressing in somewhat technical language a common experience, as most people, I suppose, have such *alternations of complexes.* The facts are trite enough; but, because they are of common experience, it is well to formulate them and so, as far as possible, give precision to our conception of the psychological relations which have a distinct bearing on the principles of dissociated personality and other psychoses, on character and psycho-therapeutics. When, at a later time, we take up for study the subject of dissociated personality * we shall find that the dissociation of consciousness sometimes takes its lines of cleavage between systems of complexes of this kind.† And, above all, the formation of complexes *is the foundation stone of psycho-therapeutics.*

The methods of *education and therapeutic suggestion* are variants of this mode of organizing mental

* Lectures not included in this volume.

† In the case of Miss B., for example, Sally had absolute amnesia for certain systems of subject-complexes (Latin, French, etc.) possessed by the other personalities.

processes. Both, in principle, are substantially the same, differing only in detail. They depend for their effect upon the implantation in the mind of ideational complexes organized by repetition, or by the impulsive force of their affective tones, or both. Every form of education necessarily involves the artificial formation of such complexes, whether in a pedagogical, religious, ethical, scientific, social, or professional field. So in psychotherapy by artfully directed suggestion, or education in the narrower sense, complexes may be similarly formed and organized. New points of view and "sentiments" may be inculcated, useful emotions and feelings excited, and the personality correspondingly modified. Roughly speaking, this is accomplished by suggesting ideas that will form *settings* (associations) that give new and desired meanings to previously harmful ideas; and these ideas, as well as any others we desire to implant in the mind, are organized by suggestion with emotions (instincts) of a useful, pleasurable, and exalting kind to form desirable sentiments, and to carry the ideas to fulfilment. Thus sentiments of right, or of ambition, or of sympathy, or of altruism, or of disinterestedness in self are awakened; and, with all this, opposing emotions are aroused to conflict with and repress the distressing ones, and the whole welded into a complex which becomes conserved neurographically and thereby a part of the personality.

Under ordinary conditions of every-day mental life *social suggestion* acts like therapeutic sugges-

tion. But the suggestions of every-day life are so subtle and insidious that they are scarcely consciously recognized.

2. *Chronological systems* (using complex in a rather extended sense) are those which embrace the experiences of certain epochs of our lives rather than the subject material included in them. In a general way events as they are successively experienced become associated together, and with other elements of personality, so that the later recollection of one event in the chain of an epoch recalls successively the others. Conversely a break in the chain of memory may occur at any point and the chain only be picked up at a more distant date, leaving between, as a hiatus, an epoch for which there is amnesia of reproduction. This normally common *amnesia affords confirmatory evidence* of the associative relation of successive events. Involving as it does the unimportant and unemotional experiences as well as the important and emotional—though the former may be as well conserved as the latter—it is not easy to understand. The principle, however, plays an important part in abnormal amnesia particularly, but not necessarily, where there is a dissociation of personality.

The epoch may be of a few hours, or it may be of days, of months, or years. The simplest example is the frequent amnesia for the few hours preceding a physical injury to the head resulting in temporary unconsciousness. In other cases it is the result of

extensive dissociation effected by suggestion (e. g., in hypnosis), or psychical trauma including therein emotional conflicts. Thus, to cite an experimental example: Miss B. is troubled by a distressing memory which constantly recurs to her mind during the twenty-four hours. To relieve her I suggest that she will completely forget the original experience. To my surprise, though the suggestion is limited to the experience alone, the whole twenty-four hours are completely wiped out of her memory. She cannot recall a single incident of that day. The whole epoch which had associations with the memory is dissociated.

When the epochal amnesia follows psychical trauma the condition of memory is apt to present the following peculiarity and the personality may be altered. When the epoch is the immediate past, i. e., includes the experiences extending from a certain past date up to the present, it sometimes happens that memory reverts to that past date. That is to say, the personality goes back to the period last remembered in which he believes, for the moment, he is still living, the memory of the succeeding last epoch being dissociated from the personal consciousness. Under such conditions there is something more than amnesia. The neurographic residua of the remembered epoch are revived and its experiences remembered as if they had just been lived. There is not only a dissociation of the memories of one epoch, but a resurrection of the conserved and maybe forgotten experiences of a preceding one.

The synthesis of these memories restores again the personal consciousness of that period. Before the cleavage took place the recollection of the resurrected epoch may have been very incomplete and vague; afterward the new personality remembers it as if just experienced. The personality is, however, in other respects generally (always?) something different from the personality of that particular epoch. The dissociation is apt to involve a certain number of acquired traits and certain innate dispositions and instincts, while other outlived and repressed traits and innate dispositions and instincts are apt to be reawakened and synthesized into an altered abnormal personality. But this is another story that does not concern us now.

As an example of epochal amnesia I may cite Mrs. J——, who, after dissociation occurs, has amnesia for all the events of several years succeeding a certain hour of a certain day when a psychical trauma (shock) occurred. She thinks she is living on that day and remembers in great detail its events as if they had just occurred.

Miss B. reverts on one occasion to a day, six years back, when she received a psychical shock; the complexes of her personality of that day are revived as if just lived, all the succeeding years being forgotten; on another occasion she reverts to a day when she was living in another city seven or eight years before.

M——l reverts to an early period of his life when

he was living in Russia, and forgets all since including even his knowledge of English.

B. C. A. on several occasions reverts to different epochs of her life with complete amnesia for all after events. On each occasion she takes up the thread of her mental life as if living in the past, and recites the events as if just lived.

Likewise, after a subject reverts from the abnormal to the normal state, after a short or long condition of altered personality, there may be a complete amnesia for the abnormal epoch, and although now normal he thinks it the same day on which dissociation occurred.

Thus, Miss O. develops a condition of dissociated personality lasting six months during which, as it unfortunately happens, she falls in love with a man whom she had never known in her normal state. At the end of this period she "wakes up" with a complete loss of memory for the phase of altered personality and, therefore, to find that her fiancé is apparently a stranger to her (!).

The same amnesia in the normal state for prolonged epochs in which the personality was altered was conspicuous in the case of Miss B. In William James' often-cited case of Ansel Bourne and Dr. E. E. Mayer's case of Chas. W. the subjects returned to their normal states with complete amnesia for the abnormal epochs of two months and seventeen years respectively.

After all, the common *amnesia for the hypnotic state after waking is the same phenomenon.*

Such observations show the possible systematization of epoch complexes, although the determining conditions are not as yet understood.

3. *Disposition or Mood systems.*—Among the loosely organized complexes in many individuals, and possibly in all of us, there are certain dispositions toward views of life which represent natural inclinations, desires, and modes of activity, which, for one reason or another, we tend to suppress or are unable to give full play to. Many individuals, for example, are compelled by the exactions of their duties and responsibilities to lead serious lives, to devote themselves to pursuits which demand all their energies and thought and which, therefore, do not permit of indulgence in the lighter enjoyments of life; and yet they may have a natural inclination to partake of the pleasures which innately appeal to all mankind and which many actually pursue; in other words, to yield to the impulsive force of the innate disposition, or instinct, of play. But these desires are repressed. Nevertheless the longing for these pleasures, under the impulses of this instinct, recurs from time to time. The mind dwells on them, the imagination is excited and weaves a fabric of pictures, sentiments, thoughts, and emotions the whole of which thus becomes organized into a systematized complex.

There may be a conflict, a rebellion and "kicking against the pricks" and, thereby, a liberation of emotional force of the instinct, impressing, on the

one hand, a stronger organization of the whole process, and, on the other, repressing all conflicting desires. Or, the converse of this may hold and a person who devotes his life to the lighter enjoyments may have aspirations and longings for the more serious pursuits, and in this respect the imagination may similarly build up a complex which may similarly express itself. The recurrence of such complexes is one form of what we call a "mood" which has a distinctively emotional tone of its own derived from the instincts and sentiments which are dominant. Such a "disposition" system is often spoken of as *"a side to one's character,"* to which a person may from time to time give play. Thus a person is said to have "many sides to his character," and exhibits certain alternations of personality which may be regarded as normal prototypes of those which occur as abnormal states.

It may be interesting to note in passing that the well-known characteristics of people of a certain temperament, in consequence of which they can pursue their respective vocations only when they are "in the mood for it," can be referred to this principle of complex formations and dissociation of rival systems. Literary persons, musicians, and artists in whom "feeling" is apt to be cultivated to a degree of self-pampering are conspicuous in this class. The ideas pertaining to the development of their craft form mixed subject and mood complexes which tend to have strong emotional and feeling tones. When some other affective tone is substituted, or-

ganized within a conflicting complex, it is difficult for such persons to revive the subject complex belonging to the piece of work in hand and necessary for its prosecution. "The ideas will not come," because the whole subject complex which supplies the material with which the imagination is to work has been dissociated and replaced by some other. Certain elements in the complex can be revived piecemeal, as it were, but the complex will not develop in mass with the emotional driving energy which belongs to it. Not having their complexes and affects under voluntary control it is necessary for such persons to wait until, from an alteration in the coenesthesis or for some other reason, an alteration in the "feeling" has taken place with a revival of the right complex *in mass*.

No more exquisite illustration of these "disposition complexes" could be found than in the personality of William Sharp. Sharp's title to literary fame very largely rests upon the writings which he gave to the world under the feminine name of Fiona Macleod. The identity of the author was concealed from the world until his death, and it is still a common belief that this concealment and the assumption of the feminine pseudonym were nothing more than a literary hoax. Nothing could be farther from the truth. There were two William Sharps; by which I mean, of course, there were two very strongly organized and sharply cut sides to his character. Each had its points of view, its complexes of ideas,

its imaginings, and, above all, its creative tendencies and feeling tones. The one side—the one christened William Sharp—was the bread and butter earner, the relatively practical man who came in contact with the world—literary critic, "biographer, essay and novel writer as well as poet"—the experienced side which was obliged to correct its imagination by constant comparison with reality. The other side—Fiona Macleod—was the so-called inner man; what he himself called his "true inward self." As Fiona he lived in his imagination and dreamed. The development of this side of his personality began while, as he said, "I was still a child." "He found," his biographer writes,* "as have other imaginative, psychic children, that he had an inner life, a curious power of visions unshared by any one about him, so that what he related was usually discredited; but the psychic side of his nature was too intimate a part of his mind to be killed by misunderstanding. He learned to shut it away—to keep it as a thing apart—a mystery of his own, a mystery to himself."

This inner life, as time went on, became a mood which he fostered and developed and in which he built up great complexes of fancies, points of view, and emotions, which, when the other side of his character came uppermost, remained neurographically conserved and dormant in the unconscious. The Fiona complexes he distinctly felt to be feminine in type so that when he came to give expression to

* William Sharp, A Memoir, by Elizabeth A. Sharp.

them, as he felt he must, he concealed this side of his character under a feminine pseudonym. "My truest self," he wrote, "the self who is below all other selves, and my most intimate life, and joys, and sufferings, thoughts, emotions, and dreams must find expression, yet I cannot save in this hidden way."

"From time to time the emotional, the more intimate self, would sweep aside all conscious control; a dream, a sudden inner vision, an idea that had lain dormant in what he called 'the mind behind the mind' would suddenly visualize itself and blot out everything else from his consciousness, and under such impulse he would write at great speed, hardly aware of what, or how, he wrote, so absorbed was he in the vision with which for the moment he was identified."

"All my work," he said, "is so intimately wrought with my own experiences that I cannot tell you about *Pharais,* etc., without telling you my whole life."

William Sharp himself realized the two moods or "sides," which became in time developed into two distinct personalities. These he distinctly recognized, although there was no amnesia. "Rightly or wrongly," he wrote, "I am conscious of something to be done by one side of me, by one-half of me, by the true inward mind as I believe—(apart from the overwhelmingly felt mystery of a dual mind, and a reminiscent life, and a woman's life and nature within concurring with and oftenest dominating the

other) . . . " This dual personality was so strongly realized by him that on his birthdays he wrote letters to himself as Fiona signed "Will," and *vice versa.*

I have dwelt upon this historical example of the exaggerated development of mood complexes because, while well within the limits of normal life, it brings home to us the recognition of psychological facts which we all, more or less, have in common. But, more important than this, in certain abnormal conditions where the dissociation between systems of complexes becomes more exaggerated, mood, subject, chronological and other complexes, linked as each is with its own characteristic emotions and feelings—instincts and other innate dispositions—play a paramount part and dominate the personality. In the *hysterical personality,* in particular, there is more or less complete reversion to or a subconscious awakening of one or other such complex. Where the hysterical dissociation becomes so extreme as to eventuate in amnesia in one state for another the different systems of complexes are easily recognized as so many phases of *multiple personality.* But in so identifying the ideational content of phases of personality it should not be overlooked that intensive studies of multiple personality disclose the fact that the dissociation of one phase for another carries with it certain of the instincts innate in every organism. What I mean to say is, observation of psychopathological states has shown that instincts,

such as play, hunger, anger, fear, love, disgust, the sexual instincts, etc., may be dissociated separately or in conjunction with complexes of ideas. In every case of multiple personality that I have had the opportunity to study each phase has been shorn of one or more of these inborn psycho-physiological dispositions and I believe this obtains in every true case. As a result certain sentiments and traits are lost while those that are retained stamp an individuality upon the phase. And as the conative forces of the retained instincts are not balanced and checked by the dissociated opposing instincts, the sentiments which they form and the emotional reactions to which they give rise stand out as dominating traits. Thus one phase may be characterized by pugnacity, self-assertion, and elation; another by submission, fear and tender feeling; and so on.

This is not the place to enter into an explanation of dissociated personality, but I may point out, in anticipation of a deeper discussion of the subject, that, in accordance with these two principles, in such conditions we sometimes find that disposition and other complexes conserved in the unconscious come to the surface and displace or substitute themselves for the other complexes which dominate a personality. A complex or system of complexes that is only a mood or a "side of the character" of a normal individual, may in conditions of dissociation become the main complex and chief characteristic of the new personality. In Miss B., for instance, the personality known as BI was made up almost entirely of the

religious and ethical ideas with corresponding instincts which formed one side of the original self. In the personality known as Sally we had for the most part the chronological and mood complexes of youth representing the enjoyment of youthful pleasures and sports, the freedom from conventionalities and artificial restraints generally imposed by duties and responsibilities; she was a resurrection of child life. In BIV the complex represented the ambitions and activities of practical life. In Miss B., as a whole, normal, without disintegration, it was easy to recognize all three dispositions as sides of her character, though each was kept ordinarily within proper bounds by the conflicting influence of the others. It was only necessary to put her in an environment which encouraged one or the other side, to associate her with people who strongly suggested one or the other of her own characteristics, whether religious, social, pleasure-loving, or intellectual, to see the characteristics of BI, Sally, or BIV stand out in relief as the predominant personality. Then we had the alternating play of these different sides of her character.

Likewise in B. C. A. In each of the personalities, B and A, similar disposition complexes could be recognized each corresponding to a side of the character of the original personality C. In A were represented the complexes formed by ideas of duty, responsibility, and moral scruples; in B were represented the complexes formed by the longing for fun and the amusements which life offered. When the

cleavage of personality took place it was between these two complexes, just as it was in Miss B. between the several complexes above described. This is well brought out in the respective autobiographies of B * and Sally † in these two cases. In many cases of hysteria in which dissociation of personality can be recognized the same phenomenon is often manifest. A careful study will reveal it also, I believe, in other cases of multiple personality, although, of course, as we have seen, the dissociation may be along other lines; that is, between other complexes than those of disposition.

This principle of the conservation, as neurograms in the unconscious, of complexes representing "sides" to one's character, gives a new meaning to the saying *In vino veritas.* In alcoholic and other forms of intoxication there results a loss of inhibition, of self-control, and the disposition complexes, which have been repressed or concealed by the individual as a matter of social defense, arise out of the unconscious, and, for the time being, become the dominant mood or phase of personality. When these complexes represent the true inner life and nature of the individual, freed from the repressing protection of expediency, we can then truly say "In vino veritas."

Complexes organized in hypnotic and other dissociated conditions.—1. We have been speaking thus far of

* My Life as a Dissociated Personality, *Journal of Abnormal Psychology,* October-November, 1908, December-January, 1909.

† The Dissociation, Chapter XXIII.

complexes formed in the course of every-day life and which take part in the composition of the normal personality. But it is obvious that a complex may be organized in any condition of personality so long as we are dealing with consciousness, however limited or disturbed. Thus in *artificial states,* like hypnosis and the subconscious process which produces automatic writing, ideas may be synthesized into systems as well as in normal waking life. This is exemplified by the fact that in hypnosis the memories of past hypnotic experiences are conserved and form systems of memories dissociated from the memories of waking life. When the subject regains the normal condition of the personal self, though there may be amnesia for the hypnotic experiences their neurograms remain conserved to the same extent and in the same fashion as do those of the waking life. Consequently on the return to the hypnotic state the memories of previous hypnotic experiences are recovered.

This systematization of hypnotic experiences is easily recognized in those cases where several different hypnotic states can be obtained in the same individual. Each state has its own system of memories differing from, and with amnesia for, those of the others. Each system also has its own feeling tones, one system, for example, having a tone of elation, another, of depression, etc. The systematization is still more accentuated in cases like the one mentioned in the second lecture (p. 19), where the subject goes into a hypnotic state resembling a trance,

and lives in an ideal world, peopled by imaginary persons, and in an imaginary environment, perhaps a spirit world or another planet. The content of consciousness consists of fabrications which make up a fancied life. In the instance I have mentioned the subject imagined she was living in a world of spirits; in Flournoy's classical case, Mlle Hélène Smith imagined she was an inhabitant of the planet Mars, and spoke a fabricated language. In these states the same systems of ideas invariably appeared.

2. In consequence of this principle of systematization it is in our power by educational suggestion in hypnosis to organize mental processes and *build complexes* of the same kind and in the same way as when the subject is awake. In fact, it is more readily done, inasmuch as in hypnosis the critical judgment and reflection tend to be suspended. The suggested ideas are accepted and education more easily accomplished. While in hypnosis the individual may thus be made to accept and hold new beliefs, new judgments, in short, new knowledge.* After waking he may or may not remember his hypnotic experiences. Generally he does. If he does the new knowledge, if firmly organized (by repetition and strong affective tones) is still retained, and if accepted (i. e., not repressed by conflicting ideas) shapes his views and conduct in accordance there-

* Provided, of course, this new knowledge is justified and not contradicted by the facts and principles of life. In other words, it must be believed, at least, to be the truth.

with. Even if his hypnotic experiences are not remembered, they still belong to his personality, inasmuch as they are neurographically conserved, and, experience shows, may still influence his stream of consciousness. His views are modified by his unconscious personality. His ideas may and generally do awaken the neurograms of associated systems created in hypnosis. Not remembering the hypnotic state as a whole he does not remember the *origin* of his new knowledge; that is all.

One point to be borne in mind is that conserved ideas, whether we can recall them or not, so long as they are conserved are a part of our personality, as I have previously pointed out, and ideas can emerge from the unconscious into the field of the conscious though we have completely forgotten their origin. It requires but a single experiment in the induction of suggested post-hypnotic phenomena to demonstrate these principles.

3. As to those *pathological states* where there is a splitting of personality—hysterical crises, psycholeptic attacks, trance states, certain types of epilepsy, etc.—complexes may similarly be formed in them. In these conditions there is a dissociation of a large part of the normal mental life, and that which is left is only a limited field of consciousness. A new synthesis comes into being out of the unconscious to represent the personal self. Though the content of consciousness is a reproduction of, or determined by certain previous experiences, it is also true that in these states new experiences may result

in new complexes which then take part in the personality as with hypnotic experiences.

Personality as the survival of organized antecedent experiences.—Of course all our past mental experiences do not persist as organized complexes. The latter, after they have served their purpose, tend to become disaggregated, just as printer's type is disaggregated or distributed after it has served its purpose in printing. In the organization and development of personality the elements of the mental experiences become sifted, as it were. Normally, in the adaptation of the individual to the environment, the unessential and useless, the intermediate steps leading to the final and useful, tend to drop out without leaving surviving residua, while the essential and useful tend to remain as memories capable of recall. In the unconscious these remain more or less permanently fixed as limited ideas, sentiments, and systems of complexes. Further, those complexes of experiences which persist not only provide the material for our memories, but tend, consciously or unconsciously, to shape the judgments, beliefs, convictions, habits, and tendencies of our mental lives. Whence they came, how they were born, we have long ceased to remember. We often arrive at conclusions which we imagine in our ignorance we have constructed at the moment unaided out of our inner consciousness. In one sense this is true, but that inner consciousness has been largely determined by the vestiges furnished by forgotten expe-

riences. Many of these we imbibed from our environment and the experiences of our fellows; in this sense we are all plagiarists of the past.

Furthermore, we react, to a large extent, to our environment in a way that we do not thoroughly understand because these reactions are determined by the impulses of unconscious complexes organized with innate dispositions. Indeed, our reactions to the environment, our moral and social conduct, the affective reactions of our sentiments, instincts, feelings, and other conative tendencies, our "habits," judgments, points of view, and attitudes of mind—all that we term character and personality —are predetermined by the mental experiences of the past by which they are developed, organized, and conserved in the unconscious. Otherwise all would be chaos. We are thus the offspring of our past and the past is the present.

This same principle underlies what is called the "social conscience," the "civic" and "national conscience," patriotism, public opinion, what the Germans call "Sittlichkeit," the war attitude of mind, etc. All these mental attitudes may be reduced to common habits of thought and conduct derived from mental experiences common to a given community and conserved as complexes in the unconscious of the several individuals of the community.*

* While these pages were in press, Lord Haldane in his Montreal address (before the American Bar Association), which has attracted wide attention, developed the psychological principle of "Sittlich-

Through education, whether scholastic, vocational, or social, we inherit the experiences of our predecessors and become " . . . the heir of all the ages, in the foremost files of time." But the conceptions of one age can never represent those of a preceding age. The veriest layman in science to-

keit," as applied to communities, the nation and groups of nations. By "Sittlichkeit" is meant the social habit of mind and action underlying social customs, the instinctive sense of social obligation which is the foundation of society. This plainly includes what is often called the social conscience and actions impelled thereby. In further definition of this principle Lord Haldane quotes Fichte as stating "Sittlichkeit" to mean "those principles of conduct which regulate people in their relations to each other, and have become matter of habit and second nature at the stage of culture reached, and of which, therefore, we are not explicitly conscious." The point was made that the citizen is governed "only to a small extent by law and legality on the one hand, and by the dictates of the individual conscience on the other." It is the more extensive system of "Sittlichkeit" which plays the predominant rôle. Out of this system there develops a unity of thought and "a common ideal" which can be made to penetrate the soul of a people and to take complete possession of it. Likewise there develops "a general will with which the will of the good citizen is in accord." This will of the community (inspired by the common ideal) is common to the individuals composing it. Lord Haldane goes on to make the point that what is now true within a single nation may in time come to be true between nations or a group of nations. Thus an international habit of looking to common ideals may grow up sufficiently strong to develop a general will, and to make the binding power of those ideas a reliable sanction for their obligations to each other. With this thesis, ably presented and fortified though it be, we are not here concerned. The point I wish to make is that this conception of "Sittlichkeit" which Lord Haldane in his remarkable address, destined I believe to become historic, so ably develops and applies to the solution of a world-problem is in psychological terms identical with that of complexes of ideas and affects organized in the unconscious.

day could not entertain the conceptions underlying many hypotheses formulated by the wisest of the preceding age—of a Galileo, a Descartes, or Pascal. Lucretius, in the first century B. C., argued, with what for the time was great force, that the soul of man was corporeal and that it "must consist of very small seeds and be inwoven through veins and flesh and sinews; inasmuch as, after it has all withdrawn from the whole body the exterior contour of the limbs preserves itself entire and not a tittle of the weight is lost."

Lucretius gave much thought to this problem, but to-day the least cultured person, who has never reflected at all on psychological matters, would recognize the foolishness of such a conception and reject the hypothesis.* He would call it *common-sense* which guided him, but common-sense depends upon the fact that in the unconscious lie memories, the reasons for and origin of which we do not remember; these nullify such an hypothesis. These contradicting ideas, sifted out of those belonging to the social education, have become fixed as dormant or organized memories, and determine the judgments and trends of the personal consciousness. These memory vestiges may work for good or evil, shape

* Professor G. S. Fullerton, in the course of an essay, "Is the Mind in the Body?" interestingly refers to this fact and points out that common sense directs the common man in repudiating ancient doctrines, and that it is "part of his share in the heritage of the race." "The common sense which guides men is the resultant attitude due to many influences, some of them dating very far back indeed." *The Popular Science Monthly*, May, 1907.

our personal consciousness into a useful or useless form, one that adapts or unfits the organism to its environment. In the latter case they drive the organism into the field of pathological psychology.

LECTURE X

THE MEANING OF IDEAS AS DETERMINED BY SETTINGS

In the preceding lecture when describing the organization of emotional complexes, I mentioned, somewhat incidentally, that their fuller meaning was to be found in antecedent experiences of life; and that these experiences conserved in the unconscious formed a setting that gave the point of view and attitude of mind. It was pointed out also that if we wish to know the reason why a given experience, like that of Voltaire with Frederick, awakens a strong emotional reaction, and why the memory of this experience continues persistently organized with the emotion or gives rise to the emotional reaction whenever stimulated, we must look to this setting of antecedent experiences which gives the ideas of the complexes meaning. We need now to inquire to what extent the unconscious complex in which the setting has roots may take part in the process which gives meaning to an idea. It is a problem in *psychogenesis* and psychological mechanisms. As an imperatively recurring emotional complex is an obsession the full meaning of any given obsession is involved in the psychological problem of "Idea and Meaning."

Let us, then, take up for discussion this latter problem as preliminary to the study of that important psychosis—obsessing ideas and emotions.

A perception, or, what is in principle the same thing, an idea of an object, although apparently a simple thing, is really, as a rule, a complex affair. Without attempting to enter deeply into the psychology of perception (and ideas), and particularly into the conventional conception of perception as usually expounded in the text-books—a conception which to my mind is inadequate and incomplete *—it is sufficient for our immediate purposes to point out in a general rough way the following facts concerning perception.

Perception a synthesis of primary and secondary images. —Perception may be regarded both as a process and as a group of conscious elements some of which are within the focus of attention or awareness and some of which are outside this focus. As *a process* it undoubtedly may include much that is entirely subconscious and therefore without conscious equivalents, and much that appears in consciousness. As a group of conscious elements it is a fusion, amalgamation, or compounding of many elements.

* In that it takes into account only a limited number of the data at our disposal and neglects methods of investigation which afford data essential for the understanding of this psychological process.

My perception of X., for example, whom I recognize as an acquaintance, is much more than a cluster of visual sensations—I mean the sensations of color and form that come from the stimulation of my retina. Besides these sensations it includes a number of imaginal memory images some of which are only in the fringe of consciousness and can only be recognized by introspection or under special conditions. These secondary images, as they are called, may be (as they most often are) visual, orienting him in space and in past associative relations, according to my previous experiences; they may be auditory—the imaginal sound of his voice or verbal images of his name; or they may be the so-called kinesthetic images, etc.; and all these images supplement the actual visual sensations of color and form.

That such images take part in perception is of course well recognized in every text-book on psychology where they will be found described. It is easy to become aware of them under certain conditions. For instance, to take an auditory perception from every-day life, you are listening through the telephone and hear a strange voice speaking. Aside from the meaning of the words you are conscious of little more than auditory sensations although you do perceive them as those of a human voice and not of a phonograph. Then of a sudden you recognize the voice as that of an acquaintance. Instantly visual images of his face, and perhaps of the room in which he is speaking and his situation therein, of the furnishings of the room, etc., become associated with

the voice. Your perception of the voice now takes on a fuller meaning in accordance with these imaginal images. In such an experience, common probably to everybody, the secondary images which take part in perception are unusually clear and easily detected.

Again, let us take a visual perception. You meet face to face a person whom at first sight seems unfamiliar; then in a flash visual images of a scene in a room where you first met, verbal images of his name, and the sound of his voice rush into consciousness. The comparatively simple perception of a man has now given place to a more complex perception (apperception) of an acquaintance and has acquired a new meaning. This new meaning is in part due to these images which have supplemented the visual sensations; but it is also due to the coöperation of another and important factor—the context—which I will presently consider.

Another situation of every-day life in which we become aware of the images is when riding in a street car at night we look out of the window and fail to recognize the individual buildings as we pass them though we perceive them as houses. The neighborhood being obscured by darkness, the buildings have no meaning from the point of view of their uses, proprietorship, locality, etc., but only from an architectural point of view. Then suddenly, by some apparently subconscious process, visual memory images of the unseen neighborhood (hidden in darkness), and of the interior of the

buildings, flash into consciousness in conjunction with the actual visual pictures of the buildings. In imagination we at once see the locality and recognize (or apperceive) the buildings which acquire a new meaning as particular shops, which we have often entered, located in a particular locality, etc.

Again, take a tactual perception: If you close your eyes and touch, say a point on your left hand, with your finger, you not only perceive the touch but you perceive the exact spot that you touched. Your perception includes localization. Now if you fix your attention and introspect carefully you will find that you visualize your hand and see, more or less vividly, the point touched (and the touching finger). If you draw a figure on the hand you will visualize that figure. That is to say imaginal visual images of the hand, figure, etc., enter into the tactual perceptions. You will probably also be able to feel faint tactual "images" of the hand (joints, fingers, etc.) which combine with the visualization.* The whole complex is the perception proper.

The images which take part in actual perception,

* It is of interest to note again in this connection that these secondary images may emerge from a subconscious process to form the structure of an hallucination. Various facts of observation which I have collected support the thesis advanced by Sidis (loc. cit.) on theoretical grounds "that hallucinations are synthesized compounds of secondary sensory elements dissociated completely or incompletely from their primary elements." It would carry us too far away from our theme to consider here this problem of special pathology. Sidis further insists that hallucinations are not central, but always "are essentially of peripheral origin," a view which, it seems to me, is incompatible with numerous facts of observation.

or in ideas of objects, vary with the mode of perception (whether visual, auditory, tactile, etc.) and with objects, and in different people. Reading, or the perception of words, is in many people accompanied by the sound of the words or kinesthetic images of words. If the printed words are those of a person whose voice is familiar to us we may actually hear his voice.* General kinesthetic images may occur in perception, as with objects which look heavy, i. e., have secondary tactual sensations of heaviness. Likewise tactile and olfactory images may enter the perceptual field and supplement the visual sensations. When the sensational experiences of perception are tactile, auditory, olfactory, or gustatory visual images probably always take part in the perceptual field if the object is perceived as, e. g., the perception of velvet by touch and of an orange by smell. Summing all this up we may say, using Titchener's words: "perceptions are selected groups of sensations in which images are incorporated as an integral part of the whole process." We may further say the secondary images give meaning to sensations in forming a perception.

Now, before proceeding further in this exposition, I would point out that if memory images are habitually synthesized with sensations to form a given perception, and if perception is a matter of synthesis,

* I once dictated into a phonograph a passage of a published work. Whenever I read that passage now I hear the sound of my own voice as it was emitted by the phonograph.

then, theoretically, it ought to be possible to dissociate these images. Further, in that case, the perception as such ought to disappear. That this theoretical assumption correctly represents the facts I have been able to demonstrate by the following experiment which I have repeated many times. I should first explain that it has been shown by Janet that by certain technical procedures some hysterics can be distracted in such a way that the experimenter's voice is not consciously heard by them, but is heard and understood subconsciously. The ordinary procedure is to whisper to the subject while his attention is focused on something else. The whisper undoubtedly acts as a suggestion that the subject will not consciously hear what is whispered. The whispered word-images are accordingly dissociated, but are perceived coconsciously, and whatever coconsciousness exists can be in this way surreptitiously communicated with and responses obtained without the knowledge of the personal consciousness. In this way I have been able to make numerous observations showing the presence of dissociated coconscious complexes which otherwise would not have been suspected. Now the experiment which I am about to cite was made for the purpose of determining whether certain experiences for which the subject had amnesia were coconsciously remembered, but the results obtained, besides giving affirmative evidence on this point, furnished certain instructive facts indicative of the dissociation of secondary images.

The subject, Miss B., was in the state known as BIVa, an hypnotic state, *her eyes closed.* While she was conversing with me on a subject which held her attention I whispered in her ear with the view of communicating with coconscious ideas as above explained. While I was whispering, she remarked, "Where have you gone?" and later asked why I went away and what I kept coming and going for. On examination it then appeared that it seemed to her that during the moments when I whispered in her ear I had gone away. That is to say, she could no longer visualize my body, the secondary imaginal visual images being dissociated with my whispered words. At these times, however, she continued the conversation and was not at all in a dreamy state. Testing her tactile sense it was found that there was no dissociation of this sense during these moments. She felt tactile impressions while she was not hearing my voice, but she explained afterwards [while whispering, of course, I could not ask questions regarding sensations aloud] that when I touched her, and when she held my hand, palpating it in a curious way as if trying to make out what it was, she felt the tactile impressions, or tactile sensations, but not naturally. It appeared as the result of further observations that this feeling of unnaturalness and strangeness was due to a dissociation of the secondary visual images which normally occur with the tactile images. (She described the tactile impressions of my hand as similar to those she felt when she lifted her own hand when it

had "gone to sleep"; it felt dead and heavy as if it belonged to no one in particular.

Testing further it was found that, *before abstraction,* while she held my hand she could definitely visualize my hand, arm, and even face. While she was thus visualizing I again abstracted her auditory perceptions by the whispering process. At once the secondary visual images of my hand, etc., disappeared. As with the auditory perceptions she could not obtain these visual images, although a moment before she could visualize as far as the elbow.

Desiring now to learn whether these dissociated visual images were perceived coconsciously I whispered, at the same time holding her hand, "Do you see my hand, arm, and face?" She nodded (automatically) "Yes." "Does *she* [meaning the personal consciousness] see them?" (Answer by nod) "No." (The personal consciousness (BIVa) was unaware of the questions and nodding; the latter was performed subconsciously.)

This experiment was repeated several times. As often as she ceased to hear my voice she ceased to visualize my hand, though she could feel it without recognizing it. It follows, therefore, that the dissociation of the auditory perceptions of my voice having also robbed the subject's personal consciousness of all visual images of my body, her previous tactual perception of my hand lost thereby its visual images and ceased to be a perception.

Let us take another observation: We have seen that a tactual perception of the body includes sec-

ondary imaginal visual and other sensory images besides the tactile sensation. Now, of course, if sensation is dissociated so that one has complete anesthesia, no tactile sensation can be perceived. Under such conditions an anesthetic person theoretically might not be able to imagine the dissociated tactile sensations and the associated visual images included in tactile perception. If so such a person would not be able to visualize his body. In other words, in accordance with the well-known principle that the dissociation of a specific memory robs the personal consciousness of other elements of experiences synthesized with the specific memory, the dissociation of the tactile images carries with it the visual images associated in perception. This theoretical proposition is confirmed by actual observation. Thus B. C. A. in one hypnotic state has general anesthesia, so complete that she has no consciousness of her body whatsoever. She does not know whether she is standing or sitting, nor the attitude of her limbs, or her location in space; she is simply thought in space. Now it is found that she can visualize the experimenter, the room, and the objects in the room although she cannot visualize any part of her own body. The dissociation of the tactual field of consciousness is so complete that she cannot evoke imaginal tactual images of the body, and this dissociation of these images carries with it that of the associated imaginal visual images. Visual images of the environment, however, not being synthesized with the tactual body images, can be still

evoked. So we see from observations based on introspection and experimentation that perception includes, besides primary simple sensations of an object, secondary imaginal images of various kinds and in various numbers.

Besides images the content of ideas includes "Meaning."—What I have said thus far refers to perception and idea as the content of consciousness —a group of conscious states. But this is not all when perception is regarded as a *process*. The objects of experience have associative relations to other objects, actions, conduct, stimuli, constellated ideas, etc., i. e., past experiences represented by conserved (unconscious) complexes. As a result of previous experiences various associations have been organized with ideas and these complexes form the setting or the "context" (Tichener) which gives ideas meaning. As the secondary images give meaning to sensations to form ideas (or perceptions), so these associated complexes as settings give meaning to ideas. This setting in more general terms may be regarded as the attitude of mind, point of view, interest, etc. Just as the context in a printed sentence gives meaning to a given word, and determines which of two or more ideas it is meant to be the sign of, so in the process of all perceptions the associated ideas give meaning to the perception. Indeed it is probable that the context as a process determines what images shall become incorporated with sensations to form the nucleus of the perception. Percep-

tion thus takes one meaning when it is constellated with one complex and another meaning when constellated with another complex.

"Meaning" plays such an important part in the mental reactions of pathological and everyday life that I feel we must study it a little more closely before proceeding with our theme.

The idea horse * as the content of consciousness includes more than the primary and secondary sensory images which constitute a perception of an animal with four legs distinguished anatomically from other animals: The idea includes the meaning of a particular kind of animal possessing certain functions, useful for particular purposes and occupying a particular place in civilization, etc. We are distinctly conscious of this meaning; and al-

* I intentionally do not here say idea *of* a horse because the use of the preposition (while, of course, correctly used to distinguish horse as an idea from a material horse, or the former as a particular idea among ideas in general) has led, as it seems to me, insidiously to specious reasoning. Thus Mr. Hoernlé (Image, Idea and Meaning, *Mind,* January, 1907) argues that every idea has a meaning because every idea is an idea *of* some thing. Although this is true in a descriptive sense, psychologically idea-of-a-horse is a compound term and an imagined horse. The idea itself is horse. The speciousness of the reasoning appears when we substitute horse for idea; then the phrase would read, a "horse is always a horse of something." I agree, of course, that every idea has a meaning, but not to this particular reasoning by which the conclusion is reached, as when, for example, Mr. Hoernlé when traversing James' theory cites "image *of* the breakfast table" to denote that the breakfast table is the meaning of the image. The image *is* the (imagined) breakfast table. They are not different things as are leg and chair in the phrase, "leg of the chair," where chair plainly gives the meaning to leg.

though we may abstract more or less successfully the visual image of the animal from the meaning, and attend to the former alone, the result is an artifact. Likewise we may as an artifice abstract, to a large degree, the meaning from the image, keeping the latter in the background, and attend to the meaning.

That meaning—just as much as the sensory image of an object—is part of the conscious content of an idea becomes apparent at once, the moment the setting becomes altered and an object is collocated with a new set of experiences (knowledge regarding it). X, for example, has been known to the world as a pious, god-fearing, moral man, a teacher of the Christian religion. My perception of him, so far as made up of images, is, properly speaking, that which distinguishes him anatomically from other men of my acquaintance, that by which I recognize him as X and not as Y. But my perception also has a distinctly conscious meaning, that of a Christian man. This meaning also distinguishes him in his qualities from other men. Now it transpires to every one's astonishment that X is a foul, cruel, murderer of women—a Jack-the-Ripper. My perception of him is the same but it has acquired an entirely different meaning. A bestial, villainous meaning has replaced the Christian meaning. So almost all objects have different meanings in different persons' minds, or at different times in the same person's mind, according to the settings (experiences) with which they are collocated. My percep-

tion of A has the meaning of physician, while one of his family perceives him as father or husband. My perception of a snake, it may be, has the meaning of a loathsome, venomous animal, while a naturalist's perception may be that of a vertebrate representing a certain stage of evolution, and a psychologist holding certain theories may perceive it with a meaning given by those theories, viz.: as a sexual symbol.

This fact of meaning becomes still more obvious when we reflect that the meaning of a perception, as of A's personality as a physician or father, may occupy the focus of attention while the images of his face, voice, etc., may sink into the background.

Every one is agreed then that every idea or combination of ideas has "meaning" of some sort. Even nonsense syllables have in a psychological sense some meaning, which may be an alliteration of sound, or a symbolism of nonsense (e. g., "fol-de-rol-di-rol-dol-day") or as suitable tests for psychological experiments. I am speaking now, of course, of meaning as dealt with by psychology as a content of consciousness, and not as dealt with by logic. Every one also will probably agree that the content of an idea is a composite of sensory elements (images) and meaning—I would like to say of perception and meaning; but the use of two abstract terms is likely to lead to a juggling with words by turning attention away from the concrete facts for which the terms stand, and by connoting a sharp distinction between perception and meaning

which, as I observe the facts, does not hold. Indeed the common though useful habit of psychologists of treating meaning as an abstract symbol without specific reference to those elements of the content of consciousness for which it stands has, it seems to me, led to considerable confusion of thought.

Mr. Hoernlé, who has given us one of the clearest expositions of *idea and meaning* that I have read,* designates that constituent of an idea which is the psychical image of an object (e. g., "the visual perception of a horse") by the term "sign." "Signs," he states "are always sensational in nature, whether they are actual sensations (as in sense-perception) or ideas (images or 'revived' sensations)." Accordingly an idea is a composite of sign and meaning, or, as Mr. Hoernlé has well expressed it: "Both the idea † and its meaning, then, must be present in consciousness. Or perhaps it would be more accurate to say that they form together a complex psychical whole, a 'psychosis,' of which the different elements, however, enjoy different degrees of prominence in consciousness or draw upon themselves different amounts of attention. . . . Normally we apperceive merely the meaning, and the image or sign remains in the background, in the shade as it were. But of course we can make the image or sign the special object of attention; we can apperceive it and correspondingly the meaning falls into the background.

* R. F. Hoernlé, Image, Idea and Meaning, *Mind*, January, 1907.

† Idea, according to Mr. Hoernlé's context, is here used in the sense of a word, image or sign.

But it does not disappear; it remains in consciousness." And again, "every idea is a concrete whole of sign and meaning, in which the meaning, even when unanalyzed and 'implicit' is what is essential and prominent in consciousness. The sign on the other hand which we saw reason to identify with certain sensational elements in this conscious experience is normally subordinate and I have called this concrete idea a 'psychic whole' . . ."

I quote these passages from Mr. Hoernlé as they are admirably clear statements of the theory, but as descriptions they are a very incomplete analysis of the content of ideas, and fall far short of what we require to know when dealing with the problem of mental mechanisms. It is all very well to speak of meaning in this general way; but to rest content with such an abstract term is to only present the problem and there stop short. Mr. Hoernlé rests content with the negative statement that meaning "does not consist in images and other words." What then does it consist in?

It must be admitted that the problem is a very difficult one and therefore it is, I suppose, that most psychologists, as if scenting danger, seem to dodge the question and rest content to use meaning as a symbol like the unknown x and y of algebra. If meaning is a part of the content of consciousness it must be analyzable into specific conscious elements (images, thoughts, words, feelings or what not) representing to some extent and in some way past experiences.

Obviously a full rounded-out psychology of meaning must include an analysis of the content of meaning.* I have no intention of entering upon this task here and it is not my business. It would, however, be of very great assistance in solving many of the problems of abnormal psychology if the psychology of meaning were better worked out. But conversely, I would say, considerable light on the psychology of meaning can be derived from the study of abnormal conditions, and of the mental phenomena artificially provoked by hypnotic procedures. Some of the observations which I shall presently cite contribute, I believe, to this end.

Permit me also to point out—as the point is one which has considerable bearing on our theme—that the descriptive statement that ideas are a composite of two distinct elements, perception (images, signs) and meaning, is inadequate in another respect; it is too static and schematic. Although it is convenient to distinguish between perception and meaning, they shade into one another and indeed there does not seem to be any justification for regarding them as other than one dynamic process. As we have seen, perception is made up of a primary sensory image of an object combined with a number of secondary images. This in itself is a "psychic whole", and, as I view it, contains meaning. My perception of a watch contains secondary images

* Of course the constituents of the content must vary in each individual instance, but the kind of conscious elements that in general give meaning to the sensory part of the idea can be determined.

which give it the meaning of a watch and make it something more than a visual image. It may have a still larger and different meaning, that of a souvenir of a dead friend, and in this larger meaning the perception of the watch becomes subordinate, as a sign or group of images, and sinks into the background, while the added meaning occupies the focus of attention. Indeed the primary image of a perception may sink into relative insignificance in the background, while the secondary images become all-important and practically constitute the actual perception (or idea) as a psychic whole. Consider, for instance, what different secondary images (and meaning) are in the focus and how the primary image of the word "son" (spoken or written) almost disappears, according as the context shows it to be *my* son or *your* son; and how correspondingly different are those ideas. And so with a wider filial meaning of son. It is safe to say that King Lear's idea of "daughter" had not the filial meaning conventionally ascribed to that relationship.

If all this that I have said is valid the difference between that which we call perception and that which we call meaning is one of complexity. The less complex we call perception, the more complex, meaning. Both are determined by past experiences the residua of which are the settings.

This may be illustrated by the following: We will suppose that three persons in imagination perceive a certain building used as a department store on

a certain street I have in mind now, in a growing section of the city. One of these persons is an architect, another is an owner of property on this street, and the third is a woman who is in the habit of making purchases in the department store. When the architect thinks of the building he perceives it in his mind's eye in an architectural setting, that is, its architectural style, proportions, features, and relations. His perception includes a number of secondary images of the neighboring buildings, of their styles of architecture, and of their relations from an æsthetic point of view. In the perception of the owner of property there are also a number of secondary images, but these are of the passing people and traffic, of neighboring buildings as shops and places of business. In the perception of the woman the secondary images are of the interior of the store, the articles for sale, clothes she would like to purchase and possibly bargains dear to every woman's heart. Plainly each perceives the building from a different point of view. Each might perceive the building from the same point of view, but the point of view differs because of the differences in the past experiences of each.

In the case of the architect these experiences were those of previous observations on the architecture of the growing neighborhood. In the case of the property owner they were of thoughtful reflections on the future development of neighboring property, on the industrial relations of the building to business, and on the speculative future value of the

property. In the case of the woman they were of purchases she had made, of articles she had seen and desired, of scenes inside the shop, etc. Out of these experiences respectively a complex was built and conserved in the mind of each. The idea of the building is set in these respective experiences which therefore may be called its setting. The imaginal perception of the building obviously has a different meaning for each of our three observers, and it is plainly the setting which governs the meaning, i. e., an architectural, industrial, or shopping meaning, as the case happens to be; and we may further say the setting determines the point of view or attitude of mind or interest. *Either the perception proper of the building or the meaning may be in the focus of attention and the other recede into the background or the fringe of awareness.*

Further, different *affects* may enter into each setting and, therefore, into the perception. With the architectural perception there may be linked an æsthetic joyful emotion; with the industrial perception a depressing emotion of anxiety; with the shopping perception perhaps one of anger. (This linking of an emotion, of course, has a great importance for psychopathic states.)

The dependence of perceptions upon their settings for meaning has been very beautifully expressed by Emerson in "Each and All":

> "Nothing is fair or good alone.
> I thought the sparrow's note from heaven,
> Singing at dawn on the alder bough;

I brought him home, in his nest, at even;
He sings the song, but it cheers not now,
For I did not bring home the river and sky;
He sang to my ear—they sang to my eye.
The delicate shells lay on the shore;
The bubbles of the latest wave
Fresh pearls to their enamel gave,
And the bellowing of the savage sea
Greeted their safe escape to me.
I wiped away the weeds and foam,
I fetched my sea-born treasures home;
But the poor unsightly, noisome things
Had left their beauty on the shore
With the sun and the sand and the wild uproar."

The practical application of the theory to emotional outbreaks of everyday life.—The significance of these principles for our purpose lies in the fact that they enable us to understand numerous psychological events of everyday and pathological life that otherwise would be unintelligible. It is worth while then to study a little more closely the practical application in everyday life of this principle of settings before applying it to the more difficult problem of imperative ideas or obsessions.

No psychological event, any more than a physical event, stands entirely isolated, all alone by itself, without relation to other events. Every psychological event is related more or less intimately to antecedent events, and the practical importance or value of this relation depends for the individual partly upon the nature of the relation itself, and partly

upon the ontological value of those anterior events, i. e., the part they played and still play in the personality of the individual. No event, therefore, if it is to be completely interpreted, should be viewed by itself but only in relation to preceding ones. For example: a husband good humoredly and thoughtlessly chaffs his wife about the cost of a new hat which she exhibits with pride and pleasure. The wife in reply expresses herself by an outburst of anger which, to the astonished bystander, seems an entirely unjustifiable and inexplicable response to an entirely inadequate cause. Now if the bystander were permitted to make a psychological inquiry into the mental processes of the wife, he would find that the chaffing remark had meaning for her very different from what it had for him, and probably also for the husband; that it meant much more to her than the cost of that hat. He would find that it was set in her mind in a number of antecedent experiences consisting of criticisms of the wife by the husband for extravagance in dress; and perhaps criminations and recriminations involving much angry feeling on the part of both, and he would probably find that when the hat was purchased the possibility of criticism on the ground of extravagance passed through her mind. The chaffing remark of the husband therefore in the mind of the wife had for a context all these past experiences which formed a setting and gave an unintended meaning to the remark. The angry response, therefore, was dictated by these antecedent experiences and not simply by

the trivial matter of the cost of a hat, standing by itself. The event can only be interpreted in the light of these past conserved experiences. How much of all this antecedent experience was in consciousness at the moment is another question which we shall presently consider.

I have often had occasion to interpret cryptic occurrences of this kind happening with patients or acquaintances. They make quite an amusing social game. (A knowledge of this principle shows the impossibility of outsiders judging the rightness or wrongness of misunderstandings and contretemps between individuals—particularly married people.) To complete the interpretation of this episode of the hat—although a little beside the point under consideration: plainly the anger to which the wife gave expression was the affect linked with and the reaction to the setting-complex formed by antecedent experiences. To state the matter in another way, these experiences were the formative material out of which a *psychological torch* had been plastically fashioned ready to be set ablaze by the first touch of a match—in this case the chaffing remark or associated idea. This principle of the setting, which gives meaning to an idea, being the conserved neurograms of related antecedent experiences is strikingly manifest in pathological and quasi-pathological conditions. I will mention only two instances.

The first, that of X. Y. Z., I shall have occasion to

refer to in more detail in connection with the emotions and instincts in a later lecture.* This lady, on the first night of her marriage, felt deeply hurt in her pride from a fancied neglect on the part of her husband. The cause was trivial and could not possibly be taken by any sensible person as an adequate justification for the resentment which followed and the somewhat tragic revenge which she practiced (continuous voluntary repression of the sexual instinct during many years). But the fancied slight had a meaning for her which did not appear on the surface. As she herself insisted, in attempted extenuation of her conduct, "You must not take it alone by itself but in connection with the past." It appeared that during the betrothal period there had been a number of experiences wounding to her pride and leading to angry resentment. These had been *ostensibly but not really forgiven.* The action of her spouse on the important night in question had a meaning for her of a slight, because it stood in relation to all these other antecedent experiences, and through these only could its meaning (for her) be interpreted. As a practical matter of therapeutics it became evident that the cherished resentment of years and the physiological consequences could only be removed by readjusting the setting—the memories of all the antecedent experiences with their resentment.

The second instance was a case of hysteria of the neurasthenic type with outbreaks of emotional at-

*P. 462, Lecture XIV.

tacks in a middle-aged woman. It developed immediately, in the midst of good health, out of a violent and protracted fit of anger, almost frenzy, two years ago, culminating in the first emotional or hysterical attack. Looked at superficially the fit of anger would be considered childish because it was aroused by the fact that some children were allowed to make the day hideous by firing cannon-crackers continually under her window in celebration of the national holiday. When more deeply analyzed it was found that the anger was really *resentment* at what she considered unjustifiable treatment of herself by others, and particularly by her husband, who would not take steps to have the offense stopped. It is impossible to go into all the details here; suffice it to say that *below the surface* the experiences of life had deposited *a large accumulation of grievances* against which resentment had been continuous over a long series of years. Although loving and respecting her husband, a man of force and character, yet she had long realized she was not as necessary to his life as she wanted to be; that he could get along without her, however fond he was of her; and that he was the stronger character in one way. She wanted to be wanted. Against all this for years she had felt anger and resentment. She had concealed her feelings, controlled them, repressed them, if you will, but there remained a general dissatisfaction against life, a "kicking against the pricks," and a quickness to anger, though its expression had

been well controlled. These were the formative influences which laid the mine ready to be fired by a spark, feelings of resentment and anger which had been incubating for years. Finally the spark came in the form of a childish offense. The frenzy of anger was ostensibly only the reaction to that offense, but it was really the explosion of years of antecedent experiences. The apparent offense was only the manifested cause, symbolic if you like so to express it, of the underlying accumulated causes contained in life's grievances.* After completion of the analysis the patient herself recognized this interpretation to be the true meaning of her anger and point of view.

Similarly in everyday life the *emotional shocks* from fear in dangerous situations, to which most people are subject and which so often give rise to traumatic psychoses, must primarily find their source in the psychological setting of the perception of the situation (railroad, automobile, and other accidents). This setting is fashioned from the conserved knowledge of the fatal and other consequences of such accidents. This knowledge, deposited by past mental experiences—that which has been heard and read—induces a dormant apprehension of accidents and gives the meaning of danger to a perception of a present situation, and in itself,

Prince: The Mechanism of Recurrent Psychopathic States, with Special Reference to Anxiety States, *Journal of Abnormal Psychology*, June-July, 1911, pp. 153-154.

I may add, furnishes the neurographic fuel ready to be set ablaze by the first accident.*

* Ibid., p. 152. It is interesting to note that statistics show that traumatic psychoses following railway accidents are comparatively rare among trainmen, while exceedingly common among passengers. The reason is to be found in the difference in the settings of ideas of accidents in the two classes of persons. It is the same psychological difference that distinguishes the seasoned veteran soldier from the raw recruit in the presence of the enemy.

LECTURE XI

MEANING, SETTING, AND THE FRINGE OF CONSCIOUSNESS

The content of the fringe of consciousness considered as a subconscious zone.—It is obvious that all the past experiences which originate the meaning of an idea cannot be in consciousness at a given moment. If I carefully introspect my imaginal perception or idea of an object, say of a politician, I do not find in my consciousness all the elements which have given me my viewpoint or attitude of mind toward him—the meaning of my idea of him as a great statesman or a demagogue, whichever it be—and yet it may not be difficult, by referring to my memory, to find the past experiences which have furnished the setting which gives this viewpoint. Very little of all these past experiences can be in the content of consciousness, and much less in the focus of attention, at any given moment, nevertheless I cannot doubt that these experiences really determined the meaning of my idea, for if challenged I proceed to recite this conserved knowledge. And so it is with everyone who defends the validity of the meaning of his ideas.

The question at once comes to mind in the case

of any given perception, how much of past experience (associated ideas) is in consciousness at any given moment as the setting which provides the meaning?

That the meaning must be in consciousness is obvious; else the term "meaning" would have no meaning—it would be sheer nonsense to talk of ideas having meaning. As I have said, the meaning may be in the focus of attention or it may be in the fringe or background according to the point of interest. If in the focus of attention, meaning plainly may, synchronously or successively, include ideas of quite a large number of past experiences, but if in the background it may be another matter. In this case it may be held, and probably in many instances quite rightly, that meaning is a short summary of past experiences, or summing up in the form of a symbol, and that this summary or symbol is in the focus of attention or in the fringe of awareness, i. e., is clearly or dimly conscious. Thus, in one of the examples above given, the industrial meaning of the owner's idea of the building might be a short summing up of his past cogitations on the business value of the property; in the case of my idea of the politician, the symbol "statesman" or "demagogue"—as the case might be—might be in consciousness and be the meaning. All the rest of the past associative experiences in either case would furnish the origin of the setting but would not be the actual functioning setting itself.

It must be confessed, however, that the content

of meaning, when it is not in the focus of attention, often becomes very elusive when we try to clearly revive it retrospectively and differentiate the particular states of consciousness present at any given moment. It is probably because of this elusiveness, as of something that seems to evade analysis, that it was so long overlooked as an object of psychological study. Yet if meaning is not something more than an abstract term, and is really a component of a moment's consciousness, we ought to be able to analyze it in any given instance provided our methods of investigation are adequate. The difficulty, I think, largely arises from the fact that the minute we direct attention to such elements of the content of consciousness of any given moment as are not in the focus of attention they at once become shifted into the focus and the composition of the content also becomes altered. Consequently we are never *immediately* vividly or fully aware of the whole content. The only method of learning what is the whole content at any given moment is by *retrospection*—the recovery of it as memory. Further, special technical methods are required. Then, too, image and meaning are constantly shifting their relative positions, at one time the one being in the focus of attention, the other in the fringe, and *vice versa.*

When speaking colloquially of the content of consciousness we have in mind those ideas or components of ideas—elements of thought—which are in

the focus of attention, and therefore that of which we are more or less vividly aware. If you were asked to state what was in your mind at a given moment it is the vivid elements, upon which your attention was focused, that you would describe. But, as everyone knows, these do not constitute the whole field of consciousness at any given moment. Besides these there is in the background of the mind, outside the focus, *a conscious margin or fringe* of varying extent (*consisting of sensations, perceptions, and even thoughts*) *of which you are only dimly aware.* It is a sort of twilight zone in which the contents are so slightly illuminated by awareness as to be scarcely recognizable. The contents of this zone are readily forgotten owing to their having been outside the focus of attention; but much can be recalled if an effort to do so (retrospection) is made immediately after any given moment's experience. Much can only be recalled by the use of special technical methods of investigation. I believe that the more thoroughly this wonderful region is explored the richer it will be found to be in conscious elements.

It must not be thought that because we are only dimly aware of the contents of this twilight zone therefore the individual elements lack definiteness and positive reality. To do so is to confuse the awareness of a certain something with that something itself. To so think would be like thinking that, because we do not distinctly recognize objects in the darkness, therefore they are but shadowy forms

without substance. When, in states of abstraction or hypnosis, the ideas of this fringe of attention are recalled, as often is easily done, they are remembered as *very definite, real, conscious elements,* and the memory of them is as vivid as that of most thoughts. That these marginal ideas are not "vivid" at the time of their occurrence means simply that they are not in such dynamic relations with the whole content of consciousness as to be the focus of awareness or attention. What sort of relations are requisite for "awareness" is an unsolved problem. It seems to be a matter not only of synthesis but of dynamic relations within the synthesis.

However that may be, outside that dynamic synthesis which we distinguish as the focus of attention we can at certain moments recognize or recall to memory (whether through technical devices or not) a number of different conscious states. These may be roughly classified as follows:

1: Visual, auditory, and other sensory impressions to which we are not giving attention—(e. g., the striking of a clock; the sound of horses passing in the street; voices from the next room; coenæsthetic and other sensations of the body.

2: The secondary sensory images of which I spoke in the last lecture as taking part in perception.

3: Associative memories and thoughts pertaining to the ideas in the focus of attention.

4: Secondary independent trains of thought not related to those in the focus of attention. (As when

we are doing one thing or listening to conversation and thinking of something else. Very likely, however, what appear to be secondary trains of thought are often only alternating trains. I have, however, a considerable collection of data showing such concomitant secondary trains in certain subjects (cf. Lecture VI). Such a train can be demonstrated to be a precisely differentiated "stream" of consciousness in absent-minded conditions, where it may constitute a veritable doubling of consciousness.

Some of these marginal elements may be so distinctly within the field of awareness that we are conscious of them, but dimly so.* Others, in particular cases at least, may be so far outside and hidden in the twilight obscurity that the subject is not even dimly aware of them. In more technical parlance, we may say, they are so far dissociated that they belong to *an ultra-marginal zone and are really subconscious.* Evidence of their having been present can only be obtained through memories recovered in hypnosis, abstraction, and by other methods. These may be properly termed coconscious. Undoubtedly the degree of awareness for marginal elements, i. e., the degree of dissociation between the elements of the content of consciousness, varies at different moments in the same individual according to the degree of concentration of attention and

* It is very doubtful whether vivid awareness is a matter of intensity because, among other reasons, subconscious ideas of which the individual is entirely unaware and elements in the fringe may have decided intensity.

the character of the fixation, e. g., whether upon the environment or upon inner thoughts. It also varies much in different individuals. Therefore some persons lend themselves as more favorable subjects for the detection of marginal and ultra-marginal states than others. Furthermore, according to certain evidence at hand, there is, in some persons at least, a constant shifting or interchange of elements going on between the field of attention and the marginal and the ultra-marginal zone—what is within the first at one moment is in the second, or is entirely subconscious, the next, and *vice versa.*

Amnesia develops very rapidly for the contents of the twilight region, as I have already stated, and this renders their recognition difficult.*

In favorable subjects memory of that portion of the content of consciousness which is commonly called the fringe can be recovered in abstraction and hypnosis. In these states valuable information can be obtained regarding the content of consciousness at any given previous moment,† and this information reveals that there were present in the fringe conscious states of which the subject was never aware, or of which he is later ignorant owing to amnesia. I have studied the fringe of conscious-

* The development of amnesia seems to be inversely proportionate to the degree of awareness, provided there are no other dissociating factors, such as an emotional complex.

† This is due to the well-known fact (demonstrated in a large variety of phenomena) that ideas dissociated from the personal consciousness awake may become synthesized as memories with this same consciousness in hypnosis.

ness by this method in a number of subjects. A number of years ago *a systematic study* of the field of the content of consciousness outside the focus of awareness, including not only the fringe but what may be called the ultra-marginal (subconscious) zone, was made in a very favorable subject (Miss B.), and the general results were given in an address on the "Problems of Abnormal Psychology" * at the Congress of Arts and Sciences held in St. Louis (1904). I may be permitted to quote that summary here. The term "secondary consciousness" is used in this passage to designate the fringe and ultra-marginal (subconscious) zone.

"A systematic examination was made of the personal consciousness in hypnosis regarding the perceptions and content of the secondary consciousness during definite moments, of which the events were prearranged or otherwise known, the subject not being in absent-mindedness. It is not within the scope of an address of this sort to give the details of these observations, but in this connection I may state briefly a summary of the evidence, reserving the complete observation for future publication. It was found that—

"1. A large number of perceptions—visual, auditory, tactile, and thermal images, and sometimes emotional states—occurred outside of the personal consciousness and, therefore, the subject was not conscious of them when awake. The visual

* See *Proceedings*, also *The Psychological Review*, March-May, 1905.

images were particularly those of peripheral vision, such as the extra-conscious [marginal or ultra-marginal] perception of a person in the street who was not recognized by the personal waking consciousness; and the perception of objects intentionally placed in the field of peripheral vision and not perceived by the subject, whose attention was held in conversation. Auditory images of passing carriages, of voices, footsteps, etc., thermal images of heat and cold from the body were similarly found to exist extra-consciously, and to be entirely unknown to the personal waking consciousness.

"2. As to the content of the concomittant (dissociated) ideas, it appeared, by the testimony of the hypnotic self, that as compared with those of the waking consciousness the secondary ideas were quite limited. They were, as is always the experience of the subject, made up for the most part of emotions (e. g., annoyances), and sensations (visual, auditory, and tactile images of a room, of particular persons, people's voices, etc). They were not combined into a logical proposition, though in using words to describe them it is necessary to so combine them and therefore give them a rather artificial character as 'thoughts.' It is questionable whether the word 'thoughts' may be used to describe mental states of this kind, and the word was used by the hypnotic self subject to this qualification. Commonly, I should infer, a succession of such 'thoughts' may arise, but each is for the most part limited to isolated emotions and sensorial images

and lacks the complexity and synthesis of the waking mentation.

"3. The memories, emotions, and perceptions of which the subject is not conscious when awake are remembered in hypnosis and described. The thoughts of which the subject is conscious when awake are those which are concentrated on what she is doing. The others, of which she is not conscious, are a sort of side-thoughts. These are not logically connected among themselves, are weak, and have little influence on the personal (chief) train of thought. Now, although when awake the subject is conscious of some thoughts and not of others, both kinds keep running into one another and therefore the conscious and the subconscious are constantly uniting, disuniting, and interchanging. *There is no hard and fast line between the conscious and the subconscious, for at times what belongs to one passes into the other, and vice versa.* The waking self is varying the grouping of its thoughts all the time in such a way as to be continually including and excluding the subconscious thoughts. The personal pronoun 'I,' or, when spoken to, 'you,' applied equally to her waking self and to her hypnotic self, *but these terms were not applicable to her unconscious thoughts, which were not self-conscious.* For convenience of terminology it was agreed to arbitrarily call the thoughts of which the subject is conscious when awake the *waking consciousness,* and the thoughts of which when awake she is not conscious the *secondary consciousness.* In making this

division the hypnotic self insisted most positively on one distinction, namely that the secondary consciousness was in no sense a *personality.* The pronoun *I* could not be applied to it. In speaking of the thoughts of this second group of mental states alone, she could not say 'I felt this,' 'I saw that.' These thoughts were better described as, for the most part, unconnected, discrete sensations, impressions, and emotions, and were not synthesized into a personality. They were not, therefore, self-conscious. When the waking self was hypnotized, the resulting hypnotic self acquired the subconscious perceptions of the second consciousness; she then could say *'I,'* and the hypnotic *'I'* included what were formerly 'subconscious' perceptions. In speaking of the secondary personality by itself, then, it is to be understood that self-consciousness and personality are always excluded. This testimony was verified by test instances of subconscious perception of visual and auditory images of experiences occurring in my presence.

"4. Part played by the secondary consciousness in (a) normal mentation. The hypnotic self testified that the thoughts of the secondary consciousness do not form a logical chain. They do not have volition. They are entirely passive and have no direct control over the subject's voluntary actions.

"(b) Part played by the secondary consciousness in absent-mindedness. (1) Some apparently absent-minded acts are only examples of amnesia. There is no doubling of consciousness at the time.

It is a sort of continuous amnesia brought about by lack of attention. (2) In true absent-mindedness there does occur a division of consciousness along lines which allow a large field to, and relatively wide synthesis of the dissociated states. The personal consciousness is proportionately restricted. The subconscious thoughts may involve a certain amount of volition and judgment, as when the subject subconsciously took a book from the table, carried it to the bookcase, started to place it on the shelf, found that particular location unsuitable, arranged a place on another shelf where the book was finally placed. No evidence, however, was obtained to show that the dissociated consciousness is capable of wider and more original synthesis than is involved in adapting habitual acts to the circumstances of the moment.

"(c) Solving problems by the secondary consciousness. [The statement of the hypnotic self regarding the part played by the 'secondary consciousness' has already been given in Lecture VI, p. 167.]

"The subject of these observations was at the time in good mental and physical condition. Criticism may be made that, the subject being one who had exhibited for a long time previously the phenomena of mental dissociation, she now, though for the time being recovered, tended to a greater dissociation and formation of subconscious states than does a normal person, and that the subconscious phenomena were therefore exaggerated. This is

true. It is probable that the subconscious flora of ideas in this subject are richer than in the ordinary individual. These phenomena probably represent the extreme degree of dissociation compatible with normality. And yet, curiously enough, the evidence tended to show that the more robust the health of the individual, the more stable her mind, the richer the field of these ideas.''

Of course it is a question how far the findings in a particular and apparently specially favorable subject are applicable to people in general. I would say, however, that I have substantially confirmed these observations in another subject, B. C. A., when in apparent health. In this latter subject the richness of the fringe and what may be called the ultra-marginal region in conscious states is very striking. The same is true of O. N. (cf. Lecture VI, p. 174). Again in psychasthenics, suffering from attacks of phobia, association, or habit psycho-neuroses, etc., I have been able to recover, after the attack has passed off, memories of conscious states which during and preliminary to the attack were outside the focus of attention. Of some of these the subject had been dimly aware, and of some apparently entirely unaware (i. e., they were coconscious) For the former as well as the latter there followed complete amnesia, so that the subject was ignorant of their previous presence, and believed that the whole content of consciousness was included in the anxiety or other state which occupied the focus of attention. Consequently I am in the habit, when investigating

a pathological case, like an obsession, of inquiring (by technical methods) into the fringe of attention and even the ultra-marginal region, and reviving the ideas contained therein, particularly those for which there is amnesia. My purpose has been to discover the presence of ideas or thoughts which as a setting would explain the meaning of the idea which was the object of fear (a phobia), the exciting cause of psycho-neurotic attacks, etc. To this I shall presently return.

If all that I have said is true, it follows that the *whole content or field of consciousness at any given moment includes not only considerably more than that which is within the field of attention but more than is within the field of awareness.* The field of conscious states as a whole comprises the focus of attention plus the marginal fringe; and besides this there may be a true subconscious ultra-marginal field comprising conscious states of which the personal consciousness is not even dimly aware. We may schematically represent the relations of the different fields by a diagram (Fig. 1).

It will be noted that the field of conscious states includes A., B., and C. and is larger than that of awareness, which includes A. and B. The field of awareness is larger than that of attention (A.), but the focus of awareness coincides with the field of attention, or, as it is ordinarily termed, the focus of attention. Of course there is no sharp line of demarcation between any of these fields, but a gradual shading from A. to D. Any such diagrammatic

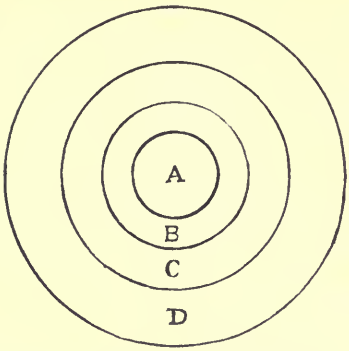

Fig. 1. A. Attention and focus of awareness.
B. Fringe of awareness.
C. Subconscious, i. e., coconscious states (ultramarginal).
D. Unconscious processes.

representation, although of help to those who like to visualize concepts, must give a false viewpoint; as in reality the relations are dynamic or functional, and the different fields more properly should be viewed as different but inter-related participants in a large dynamic mechanism.

The meaning of ideas may be found in the fringe of consciousness.—Let us now return from this general survey of the fringe of consciousness to our theme—the setting which gives meaning to ideas.

It is obvious that, theoretically, when I attend to the perceptive images of an idea, the meaning of that idea, not being in the focus of awareness, may be found among the conscious states that make up the fringe of the dynamic field. For instance, if

my idea of a certain politician, my knowledge of whom, we will say, has been gained entirely from the newspapers, is that of a bad man—a "crook"—this meaning may be dimly in the fringe of my awareness. It is not necessary that any large part of this knowledge should be in the marginal zone of the content of consciousness but only a summary of all the knowledge I have acquired regarding him. The *origin* of this meaning—a crook—I can easily find in my associative memories of what I have read. But there would seem to be no need of all these to persist as a functioning setting—a short summary in the form of an idea, secondary image, a word or symbol of a bad man would seem to be sufficient. The same principle is applicable to a large number of the simple images of objects in my environment —a book, an electric lamp, a horse, etc.

It is not easy with such normal ideas of everyday life to analyze the fringe and determine precisely its contents. There is no sharp dividing line between the various zones—the whole being a dynamic system. *The moment attention is directed to the marginal zones they become the focus and vice versa.* To obtain accurate knowledge of the marginal zones we require individuals suitable for a special technique by which the constituents of these zones can be brought back as memory.

For such purposes certain persons with pathological ideas (e. g., phobias)* are very favorable sub-

* All pathological processes are only the normal under altered conditions.

jects for various reasons not necessary to go into.

Now, as respects the simple normal ideas of everyday life, such as I have just cited, a person can give very clearly his viewpoint. He has a very definite notion of the meaning of his perceptions and can give his reasons for them based on his associative memories of past experiences which he can recall. But in the conditions to which I am now referring *a person can give no explanation* of a particular viewpoint which may be of a very definite but unusual (abnormal) character. Nor can he recall any experiences which would explain the origin of it. I have in mind particularly the obsessions.

Now, according to my observations, we find in the marginal zones of the content of consciousness conscious elements which in particular cases may even give a hitherto unsuspected meaning to the pathological idea. I have found in these zones thoughts which gave meaning to emotions and other symptoms excited by apparently inadequate objects. Thus, in H. O., attacks of recurrent nausea and fear almost prohibiting social intercourse were always due to thoughts of self-disgust hidden in the fringe.

Let us take a concrete case, that of a person who has a pathological fear and who, as we know is often the case, can give no explanation of his viewpoint. The fear may be that of fainting, or of thunderstorms, of a particular disease, say cancer, or of so-called "unreality" attacks, or what not. This so-called "fear" is of course an idea of self or other

object linked with, or which occasions as a reaction, the strong emotion of fear. It recurs in attacks which are excited by stimuli, of one kind or another, that are associated with the idea. The patient can give no explanation of the *meaning* of this idea that renders intelligible why it should occasion his fear. There is nothing in his consciousness, so far as he knows, which gives an adequate meaning to it.

Thus, for example, C. D. was the victim of attacks of fear; the attacks were so intense that at times she had been almost a prisoner in her house, in dread of attacks away from home; and yet she was unable even after two prolonged searching examinations to define the exact nature of the fear which was the salient feature of the attacks, or, from her ordinary memories, to give any explanation of its origin. She remembered many moments in the last twenty years when the fear had come upon her with great intensity, but she could not recall the date of its inception and, therefore, the conditions under which it originated; consequently nothing satisfactory could be elicited beyond an early history of "anxiety attacks" or indefinable fear of great intensity attached to no specific idea that she knew.

As a result of searching investigation by technical methods it was brought out that the specific object of the fear was *fainting*. When an attack developed, besides intense physiological disturbances and confusion of thought, there was in the content of consciousness a feeling that her mind was flying

off into space and a definite thought of losing consciousness or fainting, and that she was going to faint. There was amnesia for these thoughts following the attacks. She never had fainted in the attacks and, as it later transpired, had fainted only once in her life. Here then, *dimly in the content* of consciousness, was the object of the fear in an attack. But the object was afterwards forgotten; hence she could not explain what she was afraid of. Why fainting should be such a terrible accident to be feared she also could not explain.

The question now was, what possible meaning could fainting have for her that she so feared it? This she did not know.

Now, on still further investigation, I found that there was always in the fringe of consciousness during an attack and also during the anticipatory fear of an attack, *an idea and fear of death.* This, to use her expression, "was in the background of her mind"; it referred to impending fainting. It appeared then that in the fringe or ultra-marginal zone was *the idea of death as the meaning of fainting. Of this she was never aware.* It was really subconscious. It was the meaning of her idea of herself fainting. In consequence of this meaning fainting was equivalent to her own death. She would not have been afraid of fainting if she had not believed or could have been made to believe that in her case it did not mean death. We might properly say that the real object of the fear was death.

When this content of the fringe of attention was

recovered, the patient voluntarily remarked that she had not been aware of the presence during the attacks of that idea, but now she remembered it clearly, and also realized plainly why she was afraid of fainting,—what she had not understood before. (It must be borne in mind that this meaning of fainting, as a state equivalent to death, did not pertain to fainting in general but solely to herself. She knew perfectly well that fainting in other people was not dangerous; it was only an unrecognized belief regarding a possible accident to herself.) Besides this content of the fringe of attention it was also easy to show that the fringe often included the thought (or idea) which had been the immediate excitant of each attack. Sometimes this stimulus-idea entered the focus of attention; sometimes it was only in the fringe. In either case there was apt to be amnesia for it, but it could always be recalled to memory in abstraction or hypnosis.

The content of consciousness taken as a whole, i. e., to include both the focus and the fringe of attention, then would adequately determine the meaning of this subject's idea of fainting as applied to herself.

But why this meaning of fainting? It must have been derived from antecedent experiences. An idea can no more have a meaning without antecedent experiences with which it is or once was linked than can the word "parallelopipedon" have a geometrical meaning without a previous geometrical experience, or "Timbuctoo" a personal meaning without

being set in a personal experience, whether of missionaries or hymn-books.

I will not take the time to give the detailed results of the investigation by hypnotic procedures that followed. I will merely summarize by stating that the fear of death from fainting was a recurrent memory, i. e., *a recurrence of the content of consciousness* of a moment during an incident that occurred more than twenty years before, when she was a young girl about 18 years of age. At the time as the result of a nervous shock she had fainted, and just before losing consciousness she definitely thought her symptoms meant death. At this thought she became frightened, and ever since she has been afraid of fainting. There was no conscious association between her phobia and this youthful episode. When the memory of the latter was recovered she remarked, "I wonder why I never thought of that before."

But this again was not all. A searching investigation of the unconscious (residua) in deep hypnosis revealed the fact that death from fainting was organized with still wider experiences involving a fear of death. At the moment of the nervous shock just before fainting (*fancied as dying*) she thought of her mother who was dangerously ill from *cancer* in an adjoining room, and a great fear swept over her at the thought of what might happen to her mother if she should hear of the cause of her (the patient's) nervous shock and of her *death*. It further transpired that the idea of death and fear of

it were set in a still larger series of experiences.* It had, indeed, dated from a childhood experience when she was eight years of age. At that time she was frightened when a pet animal died and a fear of death had been more or less continuously present in her mind ever since, but not always consciously so; meaning that it was sometimes in awareness and sometimes in the *ultra-marginal zone* of consciousness. She had been able to conceal the fear until the fainting episode occurred and, as she in hypnosis asserted, fear afterward had continued to be present more or less persistently, although *she was not conscious of the fact when awake* (excepting in the phobic attacks) and it had attached itself to various ideas of intercurrent illnesses. But these ideas could all be reduced to two, *fainting and cancer*. Ever since her mother's illness and death she had a fear of death from cancer, believing she might inherit the disease. This thought and the fear it aroused had been constantly in her mind but never previously confessed. It was the real meaning of her fear of illness which had been conspicuous and puzzling to her physician. She had imagined

* Among them was the following: A few months later her mother died. C. D. was in the room with the body, her back turned toward the bed where the body lay. Suddenly she was startled by the window curtain blowing out of the window. The noise and the partial vision of the curtain gave her a start, for she thought the body had risen up in bed. At this point, while in hypnosis, C. D. remarked, "Ah! that explains the dream which I am always having. I am constantly having a frightful dream of my mother lying dead and rising up as a corpse from the bed. This dream always gives me a great terror."

that each illness might mean cancer, but had successfully concealed this thought. The idea of death and the fear it excited had thus become constellated in a large *unconscious* complex derived from past experiences which included the fainting episode, her mother's death from cancer and the possibility of having cancer herself. This last was still *consciously believed* and was very real to her.

Without pursuing further the details it is evident that although the meaning of fainting—death—was in the fringe of consciousness and subconscious, it had as a setting a large group of fear-inspiring experiences, more particularly those involving cancer. But there was no conscious association between her fear of fainting and that of cancer. *Of this setting, during a phobic attack, only the ideas of fainting and fear-inspiring death enter the various zones of consciousness.*

As to why this apparently unsophisticated idea of death still *persisted* in connection with that of fainting is another problem with which we are not concerned at this moment. We should have to consider more specifically the content of the setting in which, besides the cancer-belief, probably subconscious self-reproaches would be found.

Meaning may be the conscious elements of a functioning larger subconscious complex.—However, whatever be its conscious constituents, obviously meaning must be derived from antecedent experiences and without such experiences no idea can

have meaning. If, then, antecedent experiences determine the meaning of the idea, it is *theoretically* possible, particularly with insistent ideas, that the conscious elements involved in meaning are, with many ideas at least, only part and parcel of a larger complex which is for the most part unconscious. That is to say, a portion of this complex—perhaps the larger portion represented by the residua of past experiences—would, under this hypothesis, be unconscious while certain elements would arise in consciousness as the meaning of a given idea. Under such conditions a hidden subconscious process would really determine the conscious setting which gives the meaning. The whole setting would be partly conscious and partly hidden in the unconscious. Such a mechanism may be roughly likened to that of a clock, so far as concerns the relation of the chimes and hands to the works concealed inside the case. Though the visible hands and the audible chimes appear to indicate the time, the real process at work is that of the hidden mechanism. To inhibit the chime or regulate the time rate the mechanism must be altered. And so with an insistent idea: The unconscious part of the complex setting must be altered to alter the meaning of the idea. Of course the analogy must not be carried too far as in the case of the clock the chimes and hands are only epiphenomena, while conscious ideas are elements in the functioning mechanism.

Such a theory would afford an adequate explanation of the psychogenesis and mechanism of certain

pathological ideas such as the phobia of C. D. At any rate, it is plain that an explanation of such ideas must be sought, on the one hand, in their meanings and in the antecedent experiences to which they are related, and, on the other, in the processes which determine their insistency or fixation.

The facts which support this theory, to which our studies have led us, we will take up for consideration in our next lecture.

LECTURE XII

SETTINGS OF IDEAS AS SUBCONSCIOUS PROCESSES IN OBSESSIONS

In our last lecture we were led to two conclusions: (1) that the conscious elements which are the meaning of an idea may be in the marginal zones; and (2) more important, that "meaning" may be only a part of a larger setting of antecedent experiences, which is an unconscious complex.

Let us now consider the further question raised in the theory finally proposed; namely, whether the submerged elements of a complex remain quiescent or *whether, in some cases at least, this portion functions subconsciously* and takes part as an active factor in the whole process by which the meaning of an idea and its accompanying emotional tone invades the content of consciousness. If the latter be true, a hidden subconscious process would, according to the theory (to repeat what was previously said), really determine the conscious setting which gives the meaning. Such a mechanism was roughly likened to that of a clock. If such were the mechanism in insistent ideas, obsessions, and impulsions, it would, as I have intimated, explain their insistency, their persisting recurrence, the difficulty

in modifying them, notwithstanding the subject realizes their falsity, the point of view often inexplicable to the subject, and the persistence of the affect. There is a constant striving of affective subconscious processes, when stimulated, to carry themselves to fulfilment. Consequently as we know from numerous observations, the feelings and emotions (pleasantness and unpleasantness, exaltation and depression; fear, anger, etc.) pertaining to subconscious processes tend to emerge into consciousness;* and likewise ideational constituents of the process often emerge into the fringe of the content of consciousness and even the focus of awareness. Given such a subconsciously functioning setting to an idea, it would necessarily tend by the impulsive force of its emotion to make the latter insistent, and resist the inhibiting control of the personal consciousness.

In the case of C. D., cited in the last lecture, we were led to the conclusion, as the result of analysis, that her insistent phobia might be due to the impulsive force of such subconscious complexes. The whole problem is a very difficult one, dealing as we are with complicated mechanisms and such elusive and fluid factors as conscious and subconscious processes. It is useless, therefore, to attempt to formulate the mechanisms with anything like scientific exactness.

It must be borne in mind, further, that the method of analysis (employed with C. D.), meaning

* Janet: The Mental States of Hystericals, pp. 289-290. Prince: The Dissociation, pp. 132-5, 262, 297-8, 324-5, 497.

thereby the bringing to light associated memories of past experiences, cannot positively demonstrate that those experiences take part as the causal factor in a present process. It can demonstrate the sequence of mental events, and, therefore, each successive link in a chain of evidence leading to the final act; or it can demonstrate the material out of which we can select with a greater or less degree of probability the factor which, in accordance with a theory—in this case that of subconscious processes —seems most likely to be the causal factor. Thus in the analysis of a bacterial culture we can select the one which seems on various considerations to be the most likely cause of an etiologically undetermined disease, but for actual demonstration we must employ synthetic methods; that is, actually reproduce the disease by inoculation with a bacterium. So with psychological processes synthetic methods are required for positive demonstration.

We have *available synthetic methods in hypnotic procedures.* These give, it seems to me, positive results of value. If a subject is hypnotized and in this state a complex is formed, it will be found that this complex will determine, after the subject is awakened, the point of view and therefore the meaning of the central idea when it comes into consciousness, and this though the subject has complete amnesia for the hypnotic experience. In this manner, if the idea is one which previously had a very definite and undesirable meaning which we wish to eradicate, we

can organize a complex which shall include that idea and yet give it a very different meaning, provided it is one acceptable to the subject.

To take simple examples, and to begin with a hypothetical case, but one which in practice I have frequently duplicated: A subject is hypnotized and although, in fact, the day is a beautifully fair one we point out that it is really disagreeable because the sunshine is glowing and hot; that such weather means dusty roads, drought, the drying up of the water supply, the withering of the foliage, that the country needs rain, etc. We further assert that this will be the subject's point of view. In this way we form a cluster of ideas as a setting to the weather which gives it, fair as it is, an entirely different and unpleasant meaning and one which is accepted. The subject is now awakened and has complete amnesia for the hypnotic experience. When attention is directed to the weather it is found that his point of view, for the time being at least, is changed from what it was before being hypnotized. The perception of the clear sky and the sunlight playing upon the ground includes secondary images of heat, of dust, of withered foliage, etc., such as have been previously experienced on disagreeable, hot, dusty days, and some of the associated thoughts with their affects suggested in hypnosis arise in consciousness; perhaps only a few, but, if he continues to think about the weather, perhaps many. Manifestly the new setting formed in hypnosis has been switched into association with the conscious perceptions of

the environment and has induced the secondary images and associated thoughts, emotions, and feelings which give meaning. But it is equally manifest, though many elements bubble up, so to speak, from the unconscious setting into consciousness, that most of this setting remains submerged in the unconscious.

In similar fashion I made a subject regard, metaphorically speaking, as a cesspool for sewage a river which was being converted into a beautiful water park by a dam.* It is scarcely necessary to cite additional observations.

Manifestly such phenomena belong to the well-known class of so-called "suggested post-hypnotic phenomena." These we have already seen (solution of problems predetermined actions, &c., Lecture VI) require the postulate of a subconscious process. It is therefore difficult to resist the conclusion that, when the suggested phenomenon is the "meaning" of an idea, this also involves a subconscious process—that a hypnotically organized setting functioning subconsciously ejects the meaning into consciousness. In other words, the unconscious setting is a part of the whole "psychosis" or complex, a factor in the functioning mechanism; it is dynamic and not merely static, and is a functioning part of the "psychic whole" of the given ideas (sign, perception, and meaning). To use the analogy of the clock, the unconscious part of the

* The Unconscious, *Journal Abnormal Psychology*, April-May, 1909.

complex corresponds in a way to the works and determines what shall appear in consciousness. In the case of the ideas of everyday life, and particularly of pathological insistent ideas, unconscious complexes can be shown, by methods of analysis and by interpretation, to be existent and to be settings. We therefore infer that they similarly take part in the functioning process of ideation. But, as I have said, as any idea has many different settings and associated complexes, it is difficult to determine by this method with positiveness which setting or other complex, if any, is *in activity* and takes part in the process. Hence the different theories that have been offered to explain the precise psychogenesis of insistent ideas.

Therapeutic application.—By similar procedures in a very large number of instances, for therapeutic purposes, I have changed the setting, the viewpoint, and the meaning of ideas without any realization on the patient's part of the reason for this change. This is the goal of psychotherapy, and in my judgment the one fundamental principle common to all technical methods of such treatment, different as these methods appear to be when superficially considered.

It is obvious that in everyday life when by arguments, persuasion, suggestion, punishment, exhortation, or prayer we change the viewpoint of a person, we do so by building up complexes which shall act as settings and give new meanings to his ideas. I

may add, if we wish to sway him to carry this new viewpoint to fulfilment through action we introduce into the complex an emotion which by the driving force of its impulses shall carry the ideas to practical fruition. This is the art of the orator in swaying audiences to his views. Shakespeare has given us a classic example in Marc Antony's speech to the Roman populace.

The practical application to therapeutics of these principles of rearranging the setting of a perception by artificial complex building may be seen from the following actual case, which I have already cited in previous contributions.*

I suggest to B. C. A. in hypnosis ideas of well-being, of recovery from her infirmity; I picture a future roseate with hope, stimulate her ambitions with suggestions of duties to be performed, deeds to be accomplished. With all this there goes an emotional tone of exaltation which takes the place of the depression and of the sense of failure previously present. This emotional tone gives increased energy to her organization, revitalizing, as it were, her psycho-physiological processes [and by conflict represses the previously dissociating affect and sentiment]. The whole I weave artfully and designedly into a complex. Whatever neurotic symptoms were previously present I do not allow to enter this complex. Indeed, the complex is such that they are in-

* Morton Prince: (Psychotherapeutics; A Symposium. Richard G. Badger, Boston, 1910.) Also The Unconscious, *Journal of Abnormal Psychology,* April-May, and June-July, 1909.

compatible with it. The headache, nausea, and other bodily discomforts, pure functional disturbances in this instance, are dissociated and cease to torment. After "waking" there is complete amnesia for the complex. Yet it is still organized, for it can be recovered again in hypnosis. It is simply dormant. But the emotional tone still persists after waking, and invades the personal synthesis, which takes on a correspondingly ecstatic tone. The aspect of her environment, her conception of her relation to the world and her past, present, and future mental life have become colored, so to speak, by the new feeling, as if under a new light. But, more than this, new syntheses have been formed with new tones. If we probe deep enough we find that many ideas of the dormant complex have, through association with the environment (*point de repère*), become interwoven with those of the previous personal consciousness and given all a new meaning. A moment ago [her view was that] she was an invalid, incapacitated, exiled from her social and family life, etc. What was there to look forward to? Now: What of that? She is infinitely better; what a tremendous gain; at such a rate of progress in a short time a new life will be open to her, etc.—a radically new point of view. Now, too, she feels buoyant with health and energy, ready to start afresh on her crusade for health and life. Her neurotic symptoms have vanished. Such is the change that she gratefully speaks of it as the work of a wizard. But the mechanism of the transformation is simple enough. The exaltation, artifi-

cially suggested in hypnosis, persists, altering the trend of her ideas and giving new energy. The perceptions of her environment, cognition of herself, etc., have entered into new syntheses which the introduction of new *ideas,* new points of view have developed; thus the content of her ideas has taken a definite, precise shape. Whence came these new ideas? They seem to her to have come miraculously, for she has forgotten the hypnotic complex. But forgetting an experience is not equivalent to its not having happened, or to that experience not having been a part of one's own psychic life. The hypnotic consciousness remains a part of one's self (as a neurographic complex), however absolutely we have lost awareness of it. Its experiences become fixed, though dormant, just as do the experiences of our personal conscious life. The mechanism is the same.

The following letter from this patient, received by chance after these paragraphs were written, well expresses the psychological conditions following hypnotic suggestion:

"Something has happened to me—I have a new point of view. I don't know what has changed me so all at once, but it is as if scales had fallen from my eyes; I see things differently. That affair at L—— was nothing to be ashamed of, Dr. Prince. I showed none of the common sense which I really possess; I regret it bitterly; but I was not myself, and even as [it was] I did nothing to be ashamed of—quite the contrary, indeed. . . . Anyway, for some reason—I don't know why, but perhaps you do—I have regained my own self-respect and find to my amazement that I need never have lost it. You know what I was a year ago—you know what I am now—not much to be proud of, perhaps;

but I am the work of your hands, and a great improvement on [my poor old self]. I owe you what is worth far more than life itself . . . namely, the *desire* to live. You have given me life and you have given me something to fill it with . . . I feel more like myself than for a long time. I am 'my own man again,' so to say, and if you keep me and help me a little longer I shall be well."

In interpreting the phenomena it must be remembered that in such suggestive experiments the subject after waking has complete amnesia for the whole hypnotic experience, for all the ideas which were organized into the complex to form the setting. And yet this viewpoint, in spite of this amnesia, is that which was suggested, and he does not know why his view has changed. That a large fraction of the hypnotic complex (or setting) remains submerged in the unconscious can be readily shown. The only question is whether it becomes an active subconscious process out of which certain elements emerge as meaning into consciousness.

The setting in obsessions.—This question of the functioning of unconscious complexes as subconscious processes is of fundamental importance for psychology, whether normal or abnormal, and if well established gives an entirely new aspect to its problems. We cannot therefore be too exacting in demanding proof for the postulation of subconscious processes as part of the mechanisms we are considering, or, at least, requiring sufficient evidence to justify them as a *reasonable theory*. If assumed as

an hypothesis many otherwise obscure phenomena become intelligible by one or other theory making use of them.

Let us examine for a moment the obsessions as one of the most important problems with which abnormal psychology has to deal, and which offer themselves as exaggerated examples of ideas with insistent meanings. The phenomena are psychological and physical. They occur in a sporadic form, as well as in a recurring obsessional form. Let us consider them simply as phenomena irrespective of recurrence. They may be arranged by gradations in types in which they appear:

A, as purely physical disturbances;

B, as physical disturbances plus conscious emotion;

C, as physical disturbances plus conscious emotion plus a specific idea of the object of the emotion, but *without* logical meaning;

D, as physical disturbances plus emotion plus idea plus meaning.

In the first type the physical phenomena (such as commonly attend emotion) can be traced to a functioning subconscious emotional complex of which the phenomena are physical manifestations; in the second to a functioning subconscious complex ejecting its emotion into consciousness. In the third we find by analysis an associated unconscious complex (setting), which logically would account for the emotion of the obsessing idea, and infer, by analogy with A and B, that it is a dynamic factor in the

psychosis. In the fourth we find a similar complex, which logically would account for all the physical and conscious phenomena.

Type A: The following observation may be cited as an example. At the conclusion of some experiments, made on one subject in the presence of another patient and while conversing socially at afternoon tea, I noticed that the subject manifested marked tremor of the hands to such an extent that the cup in her hand shook and rattled in its saucer. She herself commented on the fact, and laughingly remarked that she did not know what was the matter with her; at times she would "get awfully hot all over and would break out in perspiration." She could give no explanation of this phenomenon which had not been present before the experiments were begun. The subject was now put into deep hypnosis, in a state in which communication was obtained only by writing, and thereby the subconscious tapped. Without going into all the details, the sum and substance of the information obtained in this hypnotic state was this: coconscious images (pictures), of which she was not consciously aware, kept coming and going; these were the coconscious phenomena I have previously described (p. 169). When certain images appeared coconsciously the tremor developed, and when others appeared the tremor ceased; when still others appeared there were vasomotor disturbances and perspiration as well as tremor.

The images as I interpret them were the sec-

ondary images belonging to subconscious ideas or processes.* To understand the conditions in this instance it will be necessary to explain certain antecedent facts. I had arranged to make certain hypnotic and other experiments on two patients in the presence of each other. The one in question, the subject of this observation, hesitated to have them made on herself in the presence of a second person, fearing lest the various subconscious phenomena which she exhibited would be regarded as stigmata and she be thought "queer." Each, of course, wished to see the experiments on the other. The subject in question had for a long time been rather obsessed with the insistent foolish idea that if people knew she manifested these phenomena they would not care to know her socially. It was a point of view which had been more or less obstinately maintained in spite of all contradictory arguments. The idea had specifically recurred from time to time in particular situations, and had caused considerable emotional disturbance. If not a true obsession it was close to one. Nevertheless she wanted to take part both for the object of seeing the experiments and also of meeting the second patient. Still there were anxious doubts and scruples in her mind arising from her desire, on the one hand, and a fear, on the other, that it was a social mistake to do so. This had been going on during several days and had been even the subject of correspondence, discussions, etc. It was only at the last moment

* See p. 178, Lecture VI.

that she could screw up her courage to take part in the experiments.

Finally the experiments were made, with the result as above stated. Now the coconscious images which were accompanied by the tremors, etc., were pictures of herself, of the second patient, and of myself. These images coming and going seemed, as in a pantomime, to symbolize her previous thoughts. Sometimes the image of the second patient turned away from the subject, sometimes the three images were present, but the one of the subject stood apart from the others as if an outcast, and in both these latter cases particularly she would shake with tremor, and would "get awfully hot all over," and break out in perspiration. Then apparently reassuring pictures would come and the tremor would cease.

Besides these coconscious images there was a train of coconscious thought of which she was not personally aware. There was the thought that perhaps, after all, it was a mistake to have taken part in the experiments, as X, the second patient, was not a physician, and her wish to see the subject hypnotized must have been largely curiosity. Of this train of thought the subject was not aware. *At the same time* concurrently there was in her personal consciousness the "thought that she liked X, that it was very good of her to have come, and awfully kind of you to take your time to conduct the experiments." There was also a conscious emotion of pleasure and something akin to hope, and nerv-

ousness at the situation. By contrast coconsciously there was a greater feeling of nervousness and the *emotion of fear* of which she was not consciously aware. By a few appropriate suggestions all these phenomena were made to disappear.

It would take us too long and be too much of a digression to go more deeply into these subconscious phenomena. From what has been given, which is corroborated by a large number of observations of the same sort, it seems to me we are justified in concluding that the physical manifestations of emotion (tremor, etc.) in the instance were determined by subconscious processes which were the *functioning residua of antecedent thoughts with their emotions.*

But more than this these antecedent thoughts were obsessing ideas of self-abasement, i. e., of herself as a person who socially was stamped with a stigma and, therefore, as a sort of outcast. These thoughts had formed one setting to the actual situation in which she found herself. The subconscious complex, therefore, contained a perception plus the meaning of the situation plus emotion; in other words, the whole of the psychosis including the affect was subconscious in that none of its elements emerged into consciousness. Another and rival perception of the situation was that which was actually in consciousness and which has been described. The physical phenomena were the manifestation of the subconscious affect and would have been equally manifested if the affect had become conscious. In

such a case, then, we may say the whole of one setting actually functions subconsciously.

The case of H. O. is the same in principle as I interpret it, but is distinguished by the fact that the dissociation of processes was not so extreme. The obsessing idea was in the ultramarginal zone of consciousness and, to this extent, subconscious. Briefly stated, H. O. for many years was the victim of an intense obsession, in consequence of which she had practically foregone social life, and found herself unable to travel for fear she would be afflicted with her psychosis in trains, etc. The physical symptom was intense nausea suddenly arising as an attack. When attacked with this there developed also depression and a mental state which is perhaps best described as a mood. She could give no explanation of the attacks. On examination it developed that always in the "background of her mind," just preceding the attack, there came the idea of disgust of self. At once the nausea as the physical expression of disgust was experienced. The disgust-idea was always excited by some associated stimulus. The meaning of this "sentiment" was set in a large complex of past experiences. Into all this I will not go. The point is that the only conscious elements of her obsession were in the extreme fringe of consciousness, sufficiently dissociated to be practically coconscious,* but the *physical symptoms* were distressingly prominent. *Relief was easily effected simply*

* Memory of them could only be obtained in abstraction and hypnosis.

by organizing a new complex giving a new point of view of self.

Complexes consisting entirely of the physiological manifestations of emotion without conscious emotion undoubtedly occur. A long time ago I described such a neurosis under the name of Fear Neurosis * in distinction from psychosis. The symptom complex was interpreted as a persisting automatism derived from antecedent fear states that had been outgrown. From our present standpoint and fuller knowledge we must believe that underlying this automatism is probably an unconscious complex of these antecedent experiences including the fear which takes part in the functioning mechanism. It may be called, then, a subconscious psychosis.

True *hysterical laughter and crying* are undoubtedly phenomena of this type and due to the same mechanism. These phenomena are well known to be purely automatic; that is to say, they are emotional manifestations unaccompanied in consciousness by thoughts or even by emotions corresponding to them. The subject laughs or cries without knowing why and without even feeling merry or sad. I forbear to digress sufficiently to present the evidence for the interpretation that the phenomena are due to subconscious processes of the kind just described. Let me merely say that in one instance, N. O., intensely studied, the automatic crying was traced by experimental and clinical methods to a persisting

* Fear Neurosis, *Boston Med. and Surg. Journal*, September 28, 1898.

and often insistent subconscious childhood's perception and meaning of self—as a lonely, unhappy child. This perception, etc., could be differentiated from the conscious perception belonging to adult age.

Numerous observations of emotional phenomena similar in principle have been recorded in the case of Miss B.* These observations included automatic facial expressions of pleasure, anger, and fear. These expressions could always be traced to subconscious processes and in this case to actual ideas of a coconscious personality. But the principle is the same. *Sometimes the affect linked to the process welled up into consciousness and sometimes it did not.* When, in the case of Miss B., the automatic phenomena were determined by coconscious ideas it was because the perceptions of the secondary subconscious personality had a humorous, angry, or fear setting, as the case might be. These particular observations are of especial interest because they allow us to clearly distinguish *at almost one and the same moment the different manifestations corresponding to the different settings with which the same idea may be clustered.* While, for instance, the personal consciousness of Miss B. perceived a person or situation with apprehension and manifested this apprehension in her facial expression as well as verbally, the subconscious perception of the same person or situation was one of joy which broke through Miss B.'s apprehensive feature in auto-

* The Dissociation, see index, "Subconscious Ideas," and "Subconscious Self."

matic smiles. In other words, two different perceptions (with opposite meanings) of one and the same object functioned at the same time.

These observations, as interpreted, are of wider significance in that they allow us to understand the mechanism of many phenomena of everyday life. For instance, the *hysteria of crowds* may be explained on the same principle; likewise the outbreak of emotional physical manifestations in a person whose attention is absorbed (abstraction and distraction) in reading or hearing something (e. g., at a play), which, it may be inferred, touches some inner emotional experience of his life. In the kind of instance I have in mind introspection fails to reveal the presence of conscious thoughts or sometimes even emotions which adequately explain the physical disturbance. When not abstracted by the reading or play, the same ideas he was attending to a moment before fail to excite these disturbances.

As has been said, "everyone is a little hysterical," meaning that under certain conditions—particularly those of stress and strain and strong emotion —the mind becomes a bit disintegrated, and unconscious complexes manifest themselves through what are called hysterical symptoms.

Type B: In this class the subject is afflicted with attacks of *conscious emotion,* most conspicuously and commonly fear, *plus the same physical disturbances as in type A,* but without any specific idea in consciousness to which the emotion is related.

When we examine certain favorable subjects like Miss B., B. C. A., H. O. and O. N., in whom memories of subconscious processes can be obtained by technical procedures, specific coconscious ideas can be demonstrated during the attacks of fear. These ideas are those of fear of some specific object. The emotion pertaining to these ideas *alone* emerges into consciousness, the subject remaining unaware of the ideas themselves. In the case of Miss B. numerous observations of this kind were recorded.* When the obsessing fear constantly recurs it is a so-called "*anxiety neurosis*," † as I interpret the phenomena.

A typically perfect example of anxiety neurosis was the recurring attacks of intense anxiety accompanied by a feeling of suffocation and oppression of the chest experienced by one of my subjects. Investigation disclosed that the first attack immediately followed a dream which was forgotten, but recovered in hypnosis. It appeared that in the dream she was accused by a certain person of certain delinquencies and threatened with exposure. At this point in the dream she was overcome with fear and anguish as in the after attacks. It also appeared that previously she had been and still was apprehensive of this person's loyalty. By inference and analogy with the well-established after-phenomena of dreams (p. 101), we must assume that the dream

* The Dissociation, loc. cit.

† Ibid., p. 132.

process still functioned subconsciously and produced the anxiety attacks.*

In this connection it is well to notice that it is a common observation that not only the affect of emotion but that of *feeling* also may emerge from the subconscious into consciousness and color the attitude of the personal consciousness. This may be demonstrated by hypnotic procedures. When in hypnosis complexes of ideas with strong feeling tones, whether of pleasure or displeasure, of exaltation or depression, are suggested, the subject after awakening experiences these same feeling tones which dominate the personality. The subject then feels pleasantly exalted or unpleasantly depressed, as the case may be, without knowing the reason why. In alternating personalities the same phenomena may sometimes be observed. In the case of Miss B. the feeling tones which dominated the one personality invaded the consciousness of the other personality, often causing considerable distress after the alternation had occurred and although there was amnesia for all that had gone before.† Thus BIV complained of the feelings of depression from which BI shortly before had suffered, although her own ideas were far from being of a depressing nature. This depression welled up

* It is worth noting that this interpretation is supported by the therapeutic result. The attacks completely and quickly ceased after the setting to her apprehensive idea was so altered, by one single explanation, that she no longer feared the loyalty of her friend.

† The Dissociation, pp. 262, 297, 298 and 324, 325, 497; also The Unconscious, *Journal of Abnormal Psychology*, April-May, 1909.

from the unconscious. It was in consequence of this phenomenon that BIV wrote: "BI's constant grieving wears on my nerves. It is harder to endure than one would believe possible. I would rather give and take with Sally—a thousand times rather." Likewise when a subject has feelings of unpleasantness and depression which he cannot explain it is easy in certain subjects to demonstrate the concurrence of coconscious ideas with these feeling tones. The affect in such cases emerges into consciousness, though the subject is unaware of the coconscious ideas. Correspondingly the feelings may be those of pleasantness and exaltation. The demonstration of coconscious processes as the sources of the conscious feelings of course can only be made in subjects in whom memories of coconscious processes can be evoked. In such subjects I have observed the phenomena on almost numberless occasions. But it can be provoked in almost any good hypnotic subject. To awake pleasurable and exalting feelings, to substitute them for their opposite when such are present, belongs to therapeutic art. The skillful therapeutist endeavors to provoke the former by the various procedures at his command. The important principle underlying such procedures is that the feeling tones pertaining to ideas may still invade the personal consciousness after the ideas have become dormant in the unconscious.

This principle, it seems to me, is of far-reaching application. The persistence of the feeling tone in a pleasant or unpleasant mental attitude after the

experience giving rise to it has become dormant is *observed in everyday life* and can be explained on this principle. We have an exalting experience, engage in a spirited game of tennis, watch an exciting football match, or take part in an exhilarating dance. For the remainder of the day or the next day we still experience all the stimulating pleasurable feeling, even though in the cares of our vocation the memories of the previous experiences have remained dormant, not having once been called to mind. The only difference between such experiences of everyday life and those of hypnosis is that in one case we can, if we will, recall the origin of the feeling and in the other we cannot. In both we do not.*

Dormant *dream* complexes may give rise to similar phenomena. In a minor way everyone, probably, has experienced the persistence of the emotional effects of a dream after waking and after the memory of the dream has vanished. More commonly, of course, the dream is remembered, but in the cases of people who do not remember their dreams the phenomenon is precise. B. C. A., for example, does not as a rule remember her dreams, but nevertheless frequently awakes in a state of anxiety or exaltation which has considerable persistency. In hypnosis the dream which gives rise to the emotional state is recovered.

In pathological conditions these post-hypnotic, hysterical, dream, and other phenomena suggest,

* Prince: The Unconscious, *Journal of Abnormal Psychology*, April-May and June-July, 1909.

among other questions, whether in depressive and excited psychoses the affective element is not derived from submerged unconscious complexes. *Melancholias,* for example, may in some cases at least derive their feeling tone from such complexes.

LECTURE XIII

TWO TYPES OF PHOBIA

(*Obsessions Continued*)

Type C: In this type *the affect is linked with an idea as its object in consciousness but without meaning,* so that whenever this idea is awakened it is accompanied by the affect alone. Some of the phobias are the most common pathological exemplars. Nor is there anything in the content of consciousness which gives meaning to the idea as something that should occasion anxiety. The subject, in other words, does not know why he is afraid of the given object. In such cases the restoration of dormant memories will disclose antecedent experiences in which the idea is set and which explains the origin and meaning of the fear. Here again we have the principle shown in a clear cut way in conditions of alternating personality. For instance take the case of Miss B. An emotion, apparently paradoxical, would be aroused in BIV in connection with a strange person or place, or in consequence of a reference by some one to an unknown event. BIV, without apparent reason, would feel an intense emotion in connection with something or other which

she did not remember to have ever heard or seen before. A face, a name, a particular locality where she happened to find herself would arouse a strong emotional effect without her knowing the reason. The memories of the experiences to which these emotions belonged were a part of BI's life and could easily be recalled by her when the personalities again alternated and BI came into existence. When BIV came again these experiences, of course, would be forgotten and become dormant, but the emotions associated with the visual, auditory, and other images of a given person or place, or whatever it might be, would be liable to be aroused in her by the perception, in spite of the amnesia, whenever the given person or place, as it might be, came into her daily life. Here the conscious content of the psychosis consists of perception plus affect without meaning.

I formerly was inclined to interpret such paradoxical emotions on the principle of the simple linking of an affect to a perception. But when we consider that, on the reversion of the personality to BI the perception, meaning, and affect still remained organized as a conscious psychic whole, it is much more probable that the meaning took part as a subconscious process in the mechanism of BIV's emotional psychosis and was responsible for the paradox. In the case of recurrent fears the antecedent experiences which contain their meaning are conserved as unconscious complexes. The psychosis differs clinically from types A and B only in

that another conscious element has been added,—viz.: the idea of an object of the fear. It is consistent therefore to infer that the unconscious complexes are a submerged part of the mechanism by which the affect is maintained in association with the object. The conscious and the subconscious form a psychic whole.

As an instance let us take the following case of phobia. It was ostensibly one of church-steeples and towers of any kind. The patient, a woman about forty years of age, dreaded and tried in consequence to avoid the sight of one. When she passed by such a tower she was very strongly affected emotionally, experiencing always a feeling of terror or anguish accompanied by the usual marked physical symptoms. Sometimes even speaking of a tower would at once awaken this emotional complex which expressed itself outwardly in her face, as I myself observed on several occasions. Considering the frequency with which church and schoolhouse towers are met with in everyday life, one can easily imagine the discomfort arising from such a phobia. Before the mystery was unraveled she was unable to give any explanation of the origin or meaning of this phobia, and could not connect it with any episode in her life, or even state how far back in her life it had existed. Vaguely she thought it existed when she was about fifteen years of age and that it might have existed before that. Now it should be noted that an idea of a tower with bells had in her mind

no meaning whatsoever that explained the fear. It had no more meaning than it would have in anybody's mind. In the content of consciousness there was only the perception plus emotion and no corresponding meaning. Accordingly I sought to discover the origin and meaning of the phobia by the so-called psycho-analytic method.

When I attempted to recover the associated memories by this method, the mere mention of bells in a tower threw her into a panic in which anxiety, "thrills," and perspiration were prominent. Before making the analysis I had constructed a theory in my mind to the effect that a phobia for bells in a tower was a sexual symbolism, being led to this partly by the suggestiveness of the object and partly by the fact that I had found symbolisms of a sexual kind in her dreams.*

Analysis was conducted at great length and memories covering a wide field of experiences were elicited. When asked to think of bells in a tower, or each of these objects separately, there was at first a complete blocking of thought in that her mind became a blank. Later, memories which to a large extent, but not wholly, played in various relations around her mother (who is dead) as the central object came into the field of consciousness. Nothing, however, was awakened that gave the slightest meaning to the phobia even on the wildest interpretation. The patient, who had been frequently hyp-

* In making the analysis, therefore, I was in no way antagonistic in my mind to the Freudian hypothesis.

notized by another physician, tended during the analysis to go into a condition of unusually deep abstraction, to such a degree that on breaking off the analysis she failed to remember, save very imperfectly, the memories elicited. Such an abstraction is hypnosis.

Finally, after all endeavors to discover the genesis of the phobia by analysis were in vain, I tried another method. While she was in hypnosis I put a pencil in her hand with the object of obtaining the desired information through automatic writing. *While she was narrating some irrelevant memories of her mother,* the hand rapidly wrote as follows: "G..... M..... church and my father took my mother to Bi..... where she died and we went to Br..... and they cut my mother. I prayed and cried all the time that she would live and the church bells were always ringing and I hated them."

When she began to write the latter part of this script she became depressed, sad, indeed anguished; tears flowed down her cheeks and she seemed to be almost heartbroken. In other words, it appeared as if she were subconsciously living over again the period described in the script. I say subconsciously for she did not know what her hand had written or why she was anguished. During the writing of the first part of the script she was verbally describing other memories; during the latter part she ceased speaking.

After awakening from hypnosis and when she had become composed in her mind she narrated, at

my request, the events referred to in the script. She remembered them clearly as they happened when she was about fifteen years of age. It appeared that she was staying at that time in G..... M....., a town in England. Her mother, who was seriously ill, was taken to a great surgeon to be operated upon. She herself suffered great anxiety and anguish lest her mother should not recover. She went twice a day to the church to pray for her mother's recovery and in her anguish declared that if her mother did not recover she would no longer believe in God. The chimes in the tower of the church, which was close to her hotel, sounded every quarter hour; they got on her nerves; she hated them; she could not bear to hear them, and while she was praying they added to her anguish. Ever since this time the ringing of bells has continued to cause a feeling of anguish. This narrative was not accompanied by emotion as was the automatic script.

It now transpired that it was the *ringing* of the church bells, or the *anticipated ringing* of bells, that caused the fear, and not the perception of a tower itself. When she saw a tower she feared lest bells should ring. This was the object of the phobia.*

* I want to emphasize this point, because certain students, assuming the well-known alleged sexual symbolism as the meaning of steeples and towers, will read and have read such an interpretation into this phobia. As a matter of fact, although these objects had been originally alleged by the subject herself to be the object of the fear it was done thoughtlessly as the result of careless introspection. Later she clearly distinguished the true object. They were no more

She could not explain why she had never before connected her phobia with the episode she described. This failure of association as we know is not uncommon, and in this case was apparently related to a determination to put out of mind an unbearable episode associated with so much anguish. There had been for years a more or less constant mental conflict with her phobia. The subject had striven not to think of or look at belfries, churches, schoolhouses, or any towers, or to hear the ringing of their bells, or to talk about them. She had endeavored to protect herself by keeping such ideas out of her mind. Before further analyzing the case there are two points which are well worth calling attention to:

1. When the subject subconsciously described the original childhood experience by automatic script there was intense emotion—fear—which emerged into consciousness without her knowing the reason thereof. When, on the other hand, she later from her conscious memories described the same experi-

the object than the churches and schoolhouses themselves. They bore an incidental association only, and only indicated where the ringing of bells might be expected to be heard, having been an element in the original episode. Nor were bells, qua bells, the object of the phobia, but the ringing-of-bells of the kind that recalled the mother's death. In other words, the fear was of bells with a particular meaning. Nor was the fear absolutely limited to tower-bells, for it transpired that the subject had refrained from having, as she desired, an alarm bell arranged in her house in the country (in case of fire, etc.), because of her phobia. (This note is perhaps made necessary by the violent shaking of the heads of my Freudian friends that I noticed at this point during the presentation of this case before the American Psychopathological Association.) See *Jour. Abn. Psychol.*, Oct.-Nov., 1913.

ence there was no such emotion. In other words it was only when the conserved residua of the experience functioned consciously and autonomously as a dissociated, independent process that emotion was manifested. So long as the memories were described from the view-point of the matured adult personal consciousness there was no emotion. As a subconscious process they were unmodified by this later viewpoint. This suggests at least that when the phobia was excited by the sight or idea of a tower it was due likewise to a subconscious process and that this was one and the same as that which induced the experimental phobia.

2. The phraseology of the script is noticeable. The account is just such as a child might have written. It reads as if the conserved thoughts of a child had awakened and functioned subconsciously.

From this history, so far as given, it is plain that the psychosis in one sense is a recurring antecedent experience or memory, but it is only a partial memory. The whole of the experience does not recur but only the emotion in association with the ringing of bells. The rest of that experience, viz., the idea of the possible death of her mother with its attendant grief and anguish associated with the visits to the church, the praying for recovery and finally the realization of the fatal ending—all that which originally excited the fear and *gave the ringing-of-bells-in-a-tower meaning* was conserved as a setting in the unconscious. That the rest of the experience was conserved was shown by the fact

that it could be recalled not only by automatic writing but, although not in association with the phobia, to conscious memory. From this point of view the fear of bells ringing may be regarded as a recurrence of the original fear—that of her mother's death—now derived from a subconsciously functioning setting. The child was afraid to face her grief and so now the matured adult was also afraid.

From another point of view the ringing of bells may be regarded as standing for, or a symbol of, her mother's death with which it was so intimately associated, and this symbol awakened the same fear as did originally the idea itself of the death. An object may still be the symbol of another, although the association between the two cannot be recalled. (The transference of the emotional factor of an experience to some element in it is a common occurrence; e. g., a fear of knives in a person who has had the fear of committing suicide.)

The discovered antecedent experiences of childhood then give a hitherto unsuspected meaning to the ringing of bells. It is *a* meaning—the *mise en scène* of a tragedy of grief and a symbol of that tragedy. But was that tragedy with its grief the *real* meaning of the child's fear or, perhaps more correctly, the *whole* of the meaning? And is it still the meaning in the mind of the adult woman? Does the mere conservation of a painful memory of grief explain its persistent recurrent subconscious functioning during twenty-five years, well into adult life,

so that the child's emotion shall be reawakened whenever one element (bell-tower) of the original experience is presented to consciousness? And, still more, can the persistence of a mere association of the affect with the object independently of a subconscious process explain the psychosis? Either of these two last propositions is absurd on its face as being opposed to the experience of the great mass of mankind. The vast majority of people have undergone disturbing, sorrowful or fear-inspiring experiences at some time during the course of their lives and they do not find that they cannot for years afterwards face some object or idea belonging to that experience without being overwhelmed with the same emotion. Such emotion in the course of time subsides and dies out. A few, relatively speaking, do so suffer and then, because contrary to general experience, it is called a psychosis.

We must, then, seek some other and adequate factor in the case under examination. When describing the episode in the church, the subject stated that on one occasion she omitted to go to church to pray and the thought came to her that if her mother died it would be due to this omission, and *it would be her fault.* The "eye of God"* she thought was literally

* This idea had its origin in a child's fairy tale, and had been fostered by the governess as a useful expedient in enforcing good behavior. The child accepting the fairy legend believed the Eye of God was always on her and every one in the world, and observed all that each did or omitted to do. The legend excited her imagination, and she used to think about it and wonder how God could keep His eye on so many people as there were in the world. At a still earlier

upon her in her every daily act and when her mother did die she thought that it was God's punishment of herself because of that one failure. Consequently she thought *that she was to blame for her mother's death;* that *her mother's death was her fault.* She feared to face her mother's death, not because of grief—that was a mere subterfuge, a self-deception —but because she thought she was to blame; and she feared to face towers with bells, or rather the ringing of bells, because they symbolized or stood for that death (just as a tomb-stone would stand for it), and in facing that fact she had to face her own fancied guilt and self-reproach and this she dared not do. *This was the real fear,* the fear of facing her own guilt. The emotion then was not only a recurrence of the affect associated with the church episode but a *reaction to self-reproach.* The ringing of bells, somewhat metaphorically speaking, reproached her as Banquo's ghost reproached Macbeth.

All this was the child's point of view.

But I found that the patient, an adult woman, *still believed and obstinately maintained* that her mother's death was her fault. She had never ceased to believe it. Why was this? Why had not the

age, when she was about eight, she had thought her little brother's death was also her fault, because she had neglected one night, at the time of his illness, God's eye being upon her, to say her prayers. For a long time afterward she suffered similarly from self-reproach. It is interesting to compare the outgrowing with maturity of this self-reproach with the persistence of the later one, evidently owing to the reasons given in the text.

unsophisticated belief of a child become modified by the maturity of years? It did not seem to be probable that the given child's reason was the real adult reason for self-reproach. I did not believe it. A woman forty years of age could not reproach herself on such grounds. And, even if this belief had been originally the real reason, as a matter of fact she had outgrown the child's religious belief. She was a thorough-going agnostic. Further probing brought out the following:

Two years before her mother's death, the patient, then thirteen years old, owing to her own carelessness and disobedience to her mother's instructions, had contracted a "cold" which had been diagnosed as incipient phthisis. By the physician's advice her mother took her to Europe for a "cure" and was detained there (as she believed) for two years, all on account of the child's health. At the end of this period a serious, chronic disease from which the mother had long suffered was found to have so developed as to require an emergency operation. The patient *still believed* and argued that if her mother had not been compelled to take her abroad she (the mother) would have been under medical supervision at home, would have been operated upon long before and in all probability would not have died. Furthermore, as the patient had heedlessly and disobediently exposed herself to severe cold and thereby contracted the disease compelling the sojourn in Europe, she was to blame for the train of circumstances ending fatally.

All this was perfectly logical and true, assuming the facts as presented. Here then was the real reason for the patient's persistent belief that her mother's death was her fault and the persistent self-reproach. *It also transpired that all this had weighed upon the child's mind and that the child had likewise believed it.* So the child had two reasons for self-reproach. One was neglecting to pray and the other was being the indirect cause of the fatal operation. Both were intensely believed in. The first based on the "eye of God" theory she had outgrown, but the other had persisted.

Summing up our study to this point: All these memories involving grief, suffering, self-reproach, bells and mother formed an unconscious setting which gave meaning to bells in towers and took part in the functioning to form a psychic whole. The conscious psychosis was first the emergence into consciousness of two elements only, the perception and the affect, and the fear was a reaction to self-reproach, a fear to face self-blame.

Now even if the mother's death were logically, by a train of fortuitous circumstances, the patient's fault, why did an otherwise intelligent woman lay so much stress upon an irresponsible child's behavior? The child after all behaved no differently from other children. People do not consciously blame themselves in after life for the ultimate consequences of childhood's heedlessness. According to common experience such self-reproaches do not

last into adult life without some continuously acting factor.

A search in this case into the unconscious brought to light a persisting idea that when events in her life happened unfortunately it was due to her fault. It had cropped out again and again in connection with inconsequential as well as consequential matters. She had, for instance, been really unable on many occasions to leave home on pleasure trips for fear lest some accident might happen within the home and consequently it would be due to her fault; and if away she was in constant dread of something happening for which she would be to blame. It was not a fear of what might happen—an accident to the children, for example—but that it would be her fault. I have heard her, when some matter of apparently little concern had gone wrong, suddenly exclaim, "Was it my fault?" her voice and features manifesting a degree of emotion almost amounting to terror. When her brother died (still earlier, before her mother's death) she had blamed herself for that death, as later with her mother, on the same religious grounds. This self-reproach for happenings, fancied as due to her fault, has frequently appeared in her dreams. It would take us too far afield to trace the origin and psychogenesis of this idea. Suffice to say, it can be followed back to early childhood when she was five or six years of age. She was a lonely, unhappy child. She thought herself ugly and unattractive and disliked and that so it al-

ways would be through life, and it was all her fault because she was ugly, as she thought.* The instinct

* Another example of this idea and of the way it induced a psychosis is the following: She had an intense dislike to hearing the sound of running water. This sound induced an intense feeling of *unhappiness and loneliness.* This feeling was so intense that whenever she heard the sound of running water she endeavored to get away from it. The sound of a fountain or rainwater running from a roof, for example, would cause such unpleasant feelings that she would change her sleeping room to avoid them. Likewise drawing water to fill the bathtub was so unpleasant that she would insist upon the door being closed to exclude the sound. She could give no explanation of this psychosis. It was discovered in the following way: She had been desirous of finding out the cause, and we had discussed the subject. I had promised that I would unravel the matter in due time, after the other phobia had been cured. I then hypnotized her and, while she was in hypnosis and just after we had completed the other problem, she remarked that a memory of the running water association was on the verge of emerging into her mind. She could not get it for some time, and then, after some effort, it suddenly emerged. She described it as follows: "It was at Bar Harbor. She was about eight years of age. There was a brook there called Duck Brook. The older girls used to go up there on Sundays for a walk with the boys. I went with them one Sunday, accompanied by the governess, and was standing by the brook with a boy. It was a very noisy brook, the water running down from the hillside. While I was standing by the brook, watching the running water, the boy left me to join the other girls, who had gone off. I thought that was the way it would always be in life; that I was ugly, and that they would never stay with me. I felt lonely and unhappy. During that summer I would not join parties of the same kind, fearing or feeling that the same thing would happen. I stayed at home by myself, and when I refused to go it was attributed to sullenness. They did not know my real reasons. Ever since I have been unable to bear the sound of running water, which produces the feeling of unhappiness and loneliness, the same feeling that I had at that time. I thought then that it was all my fault, because I was ugly." It was then tentatively pointed out at some length to the subject that as she now knew all the facts which had been brought to the "full light

of self-abasement (McDougall*) or negative self-feeling (Ribot) dominated the personality as the most insistent instinct and from its intensity within the self-regarding sentiment (McDougall) formed a sentiment of self-depreciation. She wanted to be liked and believed it to be her own fault that, as she fancied, she was not and never would be, and reproached herself accordingly. This sentiment of self depreciation with its impulse to render self-reproach has persisted, as with many people, all her life and has been fostered by unwise and thoughtless domestic criticism. The persistence to the present day of this impulse to self-reproach is shown in the following observation:

Quite recently this subject began to suffer from general fatigue, insomnia, distressing dreams, hysterical crying, indefinable anxiety and pseudo twilight states or extreme states of abstraction. In these states she became oblivious of her environment, did not hear the conversation going on about her, nor answer when directly spoken to. This be-

of day,'' etc., she, of course, would no longer have her former unpleasant emotions from the sound of running water. Hereupon, to put the question to the test, I reached out my hand and poured some water from a caraffe, by chance standing by, into a tumbler, letting the water fall from a height to make a sound. At once she manifested discomfort, and sought to restrain me with her hand. Plainly the setting had to be changed. This was easily done by leading her to see that her childhood's ideas had been proven by life's experiences to be false. When this became apparent she laughed at herself, and the psychosis ceased at once.

* Social Psychology.

came so noticeable that she became the jest of her companions. In these states her mind was always occupied with reveries (not fantasies), though mostly pleasant, regarding a very near relative who had died about six months previously. Her distressing dreams also concerned this relative. It appeared, therefore, probable, on the face of the symptoms that they were in some way related to this relative's death.

Now it transpired, as I already knew, that the relative had died under somewhat tragic circumstances and that our subject's experience during the last illness was unusually distressing and sorrowful. *This experience, she asserted, she could not bear to speak or even think about and over and over again had refused to do so and put it out of her mind. She further asserted that her reason for this attitude was the distressing nature of the scenes in which she took part.*

Now I did not believe that this was the true reason, although given in good faith. It was improbable on its face. To say that a grown woman, forty years of age, could not do what every woman can do, tolerate sorrowful memories simply because they were sorrowful, and must perforce put them out of her mind, is sheer nonsense. There must be some other reason.

On examining a dream it was found to be peculiar in one respect: It was not an imaginative or fantastic composition, but a detailed and precise living over again of the scenes at the death bed: that is

to say, it was a sort of somnambulistic state. In recalling this dream* she could not for some time recover the ending. Finally it "broke through," as she expressed it. The dream was as follows: First came many details of the vigil of the last night of the illness; then she went to her room and to bed to snatch a few moments' sleep; she was waked up by the husband of the dying relative appearing in her room. He sat on the edge of her bed and said to her, "All is over." Up to this point the facts of the dream were actual representations in great detail of the actual facts as they had occurred, but at this moment the dream presented a fact which had not occurred in the real scene; she suddenly, in the dream, sat up in bed and exclaimed, "My God! then I ought to have sent for the doctor!"

Here was the key to the intolerance for memories of the illness of the relative and the death-bed scene. What had happened was this: The question had arisen early in the illness whether or not a doctor should be sent for from London in consultation. The expense, owing to the distance, would have been considerable. The whole responsibility and decision rested upon the subject. Against the opinion of other relatives she had decided that it was inadvisable. After the fatal ending the question had arisen again whether or not she ought to have sent for the consultant and she had been tormented by the doubt as to whether she did right; *was the fatal result her*

* This was done in hypnosis, the dream being forgotten when awake.

fault? Although she had reasoned with herself that her decision was good judgment and right still there had always lurked a doubt in her mind. She was also somewhat disturbed by the thought of what the husband's opinion might be.

The real reason why she could not tolerate the memories of the last illness of this relative, and the psychogenesis of the symptoms now were plain: they were not grief but self-reproach with its instinct of self-abasement. The memories brought to her mind that the fault was her's and with the thought came self-reproach. *This self-reproach she was afraid of and unwilling to face.* This fact she recognized and frankly confessed after the disclosures of the analysis.

Now follows the therapeutic sequel. The relative's illness at the beginning was in no way of a dangerous nature and the proposed consultation had nothing to do with the question of danger to life. The death was due to purely an accidental factor and could not have been foreseen. When I assured her in hypnosis, with full explanation, that her decision had been medically sound, as it was, the change in her mental attitude was delightful to look upon. "Wasn't it my fault! Wasn't it my fault!" she exclaimed in excitement. Anxiety, dread, and depression gave way to exhilaration and joyousness. Thereupon she woke up completely relieved in mind, and retained the same feeling of joy, but without knowing the reason thereof. The explanation was repeated to her in the waking state and she then

fully realized (as she did also in hypnosis) that her previous view was a pure subterfuge and fully appreciated the truth of the discovered reason for her inability to face her painful memories. The twilight states, the insomnia, and the distressing dreams, the anxiety, and other symptoms ceased at once.

Returning to the phobia for bells, in the light of all these facts, the patient's belief that her mother's death was her fault and the consequent self-reproach were obviously only a particular concrete example of a lifelong emotional tendency originating in the experiences of childhood to blame herself; and this tendency was the striving to express itself of the instinct of self-abasement (with the emotion of self-subjection) which, incorporated within "the self-regarding sentiment" (McDougall), was so intensely cultivated and had played so large a part in her life. Indeed this instinct had almost dominated her self-regarding sentiment and had given rise time and again to self-reproach for accidental happenings. It now specifically determined her attitude of mind toward the series of events which led up to the fatal climax and determined her judgment of self-condemnation and self-reproach. These last most probably received increased emotional force from the large number of roots in painful associations of antecedent experiences (particularly of childhood) in which the self-regarding sentiment, self-debasement, and self-reproaches

were incorporated.* *Nevertheless the fear was of a particular concrete self-reproach.* The general tendency was of practical consequence only so far as it explained the particular point of view and might induce other self-reproaches.

As a general summary of this study it would appear that we can postulate a larger setting to the phobia than the grief inspiring experiences attending her mother's death. The unconscious complex included the belief that she was to blame and the sentiment of self-reproach, and the whole gave a fuller meaning to the ringing of bells in a tower. The fear besides being a recurring association was also a reaction to the subconsciously excited setting of a fancied truth or self-accusation. Although excited by towers and steeples the fear was really of self-reproach. Towers, steeples, and bells not only in a sense symbolized her mother's death, but her own fancied fault. It was in this sense and for this reason that she dared not face such objects. The

* For instance, when I came to the therapeutics I found in abstraction that the patient did not want to give up her point of view "because," as she said, "it forms an excuse so that when I feel lonely, if there is nothing else to be lonely about, I have that memory and point of view to fall back upon as something to justify my crying and feeling lonely and blue."

When she now feels blue and cries, as happens occasionally, and she asks herself Why? then she drifts back in her mind to childhood and remembers she was lonely and then cries the harder. Then she vaguely thinks of her mother's death being her fault. She likes therefore to hold on to this as a peg on which to hang any present feeling of blueness and loneliness.

conscious and the unconscious formed a psychic whole.*

Now in reaching these conclusions see how far we have traveled: Starting with an ostensible phobia for towers, we find it is more correctly one of ringing-of-bells, but without conscious association; then we reach a childhood's tragedy; then a self-reproach on religious grounds; then a belief in a fault of childhood's behavior culminating in a life-long self-reproach—the causal factor and psychologically the true object of the phobia: and between this last self-reproach and the phobia no conscious association.

The *therapeutic* procedure and results are instructive. As the fear was induced by a belief in a fancied fault exciting a self-reproach, obviously if this belief should be destroyed the self-reproach must cease and the fear must disappear. Now when all the facts were brought to light, the patient, as is usual, recognized the truth of them. She also

* Some, I have no doubt, will insist upon seeing in towers with bells a sexual symbol, and in the self-reproach a reaction to a repressed infantile or other sexual wish. But I cannot accede to this view first, because a tower was not only not the real object of the phobia, but not even the alleged object, which was the ringing of bells; secondly, because it is an unnecessary postulate unsupported by evidence, and, thirdly, because in fact, the associative memories of early life were conspicuously free from sex knowledge, wishes, curiosity, episodes and imaginings, nor was there any evidence of the so-called "mother complex" or "father-complex," or any other sexual complex that I could find after a most exhaustive probing. The impulses of instincts other than sexual are sufficient to induce psychical trauma, insistent ideas, and emotion. To hold otherwise is to substitute dogma for the evidence of experience.

recognized fully and completely the real nature of the fear, of the self-blame and of the self-reproach. There remained no lingering doubt in her mind, nevertheless the bringing to "the full light of day" of all this did not cure the phobia. As the first procedure in the therapeusis it was pointed out that it was contrary to common sense to blame herself for the heedlessness of a child; that all children were disobedient; that she would have been a little prig if she had been the sort of a child that never disobeyed, and that she would not have blamed any other child who had behaved in a similar way under similar circumstances, and so on. She simply said that she recognized all this intellectually as true and yet, although it was the point of view which she would take with another person in the same situation, it did not in any way alter her attitude toward herself. In other words the bringing to the full light of day of the facts did not cure the phobia. It was necessary to change the setting of her belief. *To do this either the alleged facts had to be shown to be not true or else new facts had to be introduced which would give them a new meaning.* This, briefly told, was done in the following way:

She was put into light hypnosis in order that exact and detailed memories of her childhood might be brought out. Then, through her own memories, it was demonstrated, that is to say, the *patient herself demonstrated,* that there was considerable doubt about her having had phthisis at all; that she was not taken to the usual places of "cures" for

phthisis but sojourned in the gay and pleasant cities and watering places of Europe; that her mother really staid in Europe because she enjoyed it and made an excuse of her daughter's health not to come home; that she might have returned at any time but did not want to do so; and that the fault lay, if anywhere, with her physician at home. When this was brought out the patient remarked, "Why, of course, I see it now! My mother did not stay in Europe on account of my health but because she enjoyed it, and might have returned if she had wanted to. I never thought of that before! It was not my fault at all!" After coming out of hypnosis the facts as elicited were laid before the patient; she again said that she saw it all clearly, as she had done in hypnosis, and her whole point of view was changed.

The therapeutics, then, consisted in showing that the alleged facts upon which the patient's logical conclusions had been based were false. The setting thereby was altered, and a new and true meaning given to the real facts. The result was towers and steeples no longer excited fears, the phobia ceased at once—an immediate cure.*

Type D. In this type *the conscious psychosis consists of idea, meaning, affect, and physical disturb-*

* It is worth noting that between the bringing to the "full light of day" the facts furnished by the analysis and the cure a full year and a half elapsed, during which the phobia continued. The "cure" was effected at one sitting. The original study was undertaken on purely psychological grounds; the cure for the purpose of completing the study.

ance. F. E. suffered from attacks of so-called "unreality" accompanied with intense fear. She was unable to give an intelligent explanation as to why she was afraid of the attacks—harmless in themselves—until it was brought out that there was in the *background of her mind* the thought that the attacks spelled insanity (or that she was likely to go insane) and also death. Following the attacks there was amnesia for these thoughts. Her fear really, then, was of insanity and death. The content of consciousness in the attacks contained the perception of herself as an insane person, thoughts which expressed the meaning of her attacks, and fear. (The usual physical disturbances of course accompanied the fear.) No amount of explanation of the harmlessness of the unreality syndrome sufficed to change her point of view, i. e., its meaning to her. But going further it was discovered that her self-regarding sentiment and her ideas of insanity and death were organized with a large number of fear-inspiring antecedent experiences which explained why she regarded the attacks as dangerous to her mentality and life; and why the biological instinct of fear was incorporated with the self-regarding sentiment. These experiences had long passed out of mind and there was no conscious association between them and her phobia, but they could be recalled as associative memories.* The unreality

* This account will be clearer if read in connection with the full analysis ("A Clinical Study of a Case of Phobia"), published in the *Jour. of Abn. Psychol.*, October-November, 1912.

attacks had for her two meanings which were within the content of consciousness, viz., 1, insanity, and 2, death. The first was derived from (a) antecedent girlhood and later experiences which had engendered the unsophisticated belief that having the mind fixed on one subject, as was obtrusively and painfully the case at one time, meant insanity: and (b), from the fact that the bewildering, irreconcilable, absurd thoughts, conflicts, and emotions in which the unreality attacks culminated meant insanity.

The second meaning (death) was derived from (a) the previous fixed idea (just referred to), organized with that of insanity—namely, an unsophisticated medieval idea of hell which was conceived of as the equivalent of death and which had excited an intense horror of both; and (b) from the fact that in the unreality attacks there was a *struggling* for air; struggling was in her mind, the equivalent of convulsions;* convulsions of unconsciousness; and unconsciousness of death. All these various ideas and the intense fears which each gave rise to had become organized into a complex, and, in consequence of these antecedent experiences in which self took a prominent part, the instinct of fear—as I conceive the matter—became incorporated within the self-regarding sentiment. (Anything that aroused this sentiment tended to arouse the emotion of fear, as in another person it would tend to arouse

* She was apprehensive of having inherited Bright's disease from her father, who had convulsions.

the emotion of pride, or self-abasement.) At any rate this organized complex was the setting which gave the meaning to her phobia. There can be, I think, no manner of doubt about this. The patient herself explained her viewpoint through these ideas here briefly summarized. The only question is as to the mechanism of the phobia. Now as Type D, of which these cases are examples, differs clinically from the preceding three types only in the addition of one more element—meaning—to the conscious psychic whole, a consistent interpretation would seem to compel us to postulate also a functioning subconscious complex or setting and in this case of the antecedent experiences disclosed as a factor in the mechanism and a part of the psychic whole. Out of this complex emerged into consciousness the idea of insanity and death and fear as the meaning of the unreality syndrome, the whole constituting the phobia psychosis.

That there was in fact a subconsciously functioning process derived from this complex would seem to be almost conclusively shown by another phenomenon manifested. I refer to the vivid *visualization of herself in a convulsion, struggling for air and manifesting fright,* which she experienced in each attack. We have seen that such a visualization (i. e., a modified vision) is the expression (secondary images?) of a subconscious process (coconscious ideas?). As a matter of fact this particular visualization was a pictorial representation of antecedent thoughts organized with thoughts of

death and insanity and still conserved in the unconscious. We must believe, then, that it was these antecedent thoughts (in the first place her apprehension of inheriting Bright's disease and convulsions from her father, and in the second place her conception of the unreality syndrome as a state which might possibly end in convulsions) which, functioning subconsciously, induced the quasi hallucinatory expression of themselves.* It is difficult to get away from the conclusion that the remainder of the setting from which the ideas of insanity and death were derived also functioned as a subconscious process. Whether this process was coconscious or unconscious is a secondary question which we need not consider.

In weighing the probabilities of this interpretation we should bear in mind that there were two conscious beliefs of which the patient was fully aware and which were very real to her; namely, the liability of becoming insane and to convulsions and death. The conative force of the instinct of fear linked to such ideas is quite sufficient to drive them to expression when out of mind and subconscious. Or expressed differently we may say that the fear was a reaction to these ideas which the patient dared not face.

We ought not, however, to be too sweeping in our generalizations and go further than the facts war-

* It is quite possible that this subconscious process induced the unreality syndrome in which struggling for air was the salient symptom.

rant. We are not justified in concluding that the linking of an affect to an idea always includes a subconscious mechanism. On the contrary, as I have previously said, probably in the great majority of such experiences, aside from obsessions, no such mechanism is required to explain the facts.

The Inability to Voluntarily Modify Obsessions. —We are now in a position on this theory to look a little more deeply into the structure and mechanism of an obsession and thereby realize why it is that the unfortunate victims are so helpless to modify or control them. Indeed this behavior of the setting could be cited as another piece of circumstantial evidence for the theory that the setting is largely unconscious and that only a few elements of it enter the field of consciousness. If we simply explain to a person who has a true obsession, i. e., an insistent idea with a strong feeling tone, the falsity of the point of view, the explanation in many cases at least has no or little effect in changing the viewpoint, though the patient admits the correctness of the explanation. The patient cannot modify his idea even if he will. But if the original complex, which is hidden in the unconscious and which gives rise to the meaning of the idea, is discovered, and so altered that it takes on a new meaning and different feeling tones, the patient's conscious idea becomes modified and ceases to be insistent. This would imply that the insistent idea is only an element in a larger unconscious complex which is the

setting and unconsciously determines the viewpoint. The reason why the patient cannot voluntarily alter his viewpoint becomes intelligible by this theory, because that which determines it is unconscious and unknown. He may not even know what his point of view is, owing to the meaning being in the fringe of consciousness.

If this theory of the mechanism is soundly established the difficulty of correcting obsessions becomes obvious and intelligible. It is also obvious that there are theoretically two ways in which an obsession might be corrected.

1. A new setting with strong affects may be artificially created so that the perception acquires another equally strong meaning and interest.

2. The second way theoretically would be to bring into consciousness the setting and the past experiences of which the setting is a *sifted* residuum, and reform it by introducing new elements, including new emotions and feelings. In this way the old setting and point of view would become transformed and a new point of view substituted which would give a new meaning to the perception.

Now in practice both these theoretical methods of destroying an obsession are found to work, although both are not always equally efficacious in the same case. In less intense obsessions where the complex composing the setting is only partially and inconsequently submerged, and to a slight degree differentiated from the mass of conscious experiences, the first and simpler method practically is amply

sufficient. We might say that the greater the degree to which the setting is conscious and the less the degree to which it has acquired, as an unconscious process, independent autonomous activity the more readily it may be transformed by this method.

On the other hand in the more intense obsessions, where a greater part of the setting is unconscious, has wide ramifications and has become differentiated as an independent autonomous process, the more difficult it is to suppress it and prevent its springing into activity whenever excited by some stimulus (such as an associated idea). In such instances the second method is more efficacious. It is obvious that, so long as the setting to a central idea remains organized and conserved in the unconscious, the corresponding perception and meaning are always liable under favoring conditions (such as fatigue, ill health, etc.) to be switched into consciousness and replace the new formed perception. This means of course a recurrence. Nevertheless medical experience from the beginning of time has shown that this is not necessarily or always the case. The technique, therefore, of the treatment of obsessions will vary from "simple explanations" (Taylor) without preliminary analysis to the more complicated and varying procedures of analysis and reeducation in its many forms.

Affects.—Here a word of caution in the interpretation of emotional reactions is necessary. In the building of complexes, as we have seen, an affect becomes linked to an idea through an emotional ex-

perience. The recurrence of that idea always involves the recurrence of the affect. It is not a logical necessity that the original experience which occasioned the affect should always be postulated as a continuing subconscious process to account for the affect in association with the idea. It is quite possible, if not extremely probable, that in the simpler types, at least, of the emotional complexes, the association between the idea and affect becomes so firmly established that the conscious idea alone, without the coöperation of a subconscious process, is sufficient to awake the emotion; just as in Pawlow's dogs the artificially formed association between a tactile stimulus and the salivary glands is sufficient to excite the glands to activity, or as in human beings the idea of a ship by pure association may determine fear and nausea, the sound of running water by the force of association may excite the bladder reflex, or an ocular stimulus the so-called hay fever complex. So in word-association reactions, when a word is accompanied by an affect-reaction the word itself may be sufficient to excite the reaction without assuming that an "unconscious complex has been struck." The total mechanism of the process we are investigating must be determined in each case for itself.

In the study and formulation of psychological phenomena there is one common tendency and danger, and that is of making the phenomena too schematic and sharply defined, as if we were dealing

with material objects. Mental processes are not only plastic but shifting, varying, unstable, and undergo modifications of structure almost from moment to moment. We describe a complex schematically as if it had a fixed, immutable, and well-defined structure. This is far from being the case. Although there may be a fairly fixed nucleus, the cluster, as a whole, is ill defined and undergoes considerable modification from moment to moment. New elements enter the cluster and replace or are added to those which previously took part in the composition. An analogy might be made with a large cluster of electric lights arranged about a central predominant light, but so arranged that individual lights could be switched in and cut out of the cluster at any moment and different colored lights substituted. The composition and structure of the cluster, and the intensity and color of the light, could be varied from moment to moment, yet the cluster as a cluster maintained. We might carry the analogy farther and imagine the cluster to be an advertising sign which had a meaning—the advertisement. This meaning might or might not be altered by the changes in the individual lamps.

The same indefiniteness pertains to the demarcation between the conscious and the subconscious. What was conscious at one moment may be subconscious the next and *vice versa.* Under *normal* conditions there is a continual shifting between the conscious and subconscious. I have made numerous investigations to determine this point, and the

evidence is fairly precise, and to me convincing, that this shifting continually occurs,* as might well be inferred on theoretical grounds. Nor, excepting in special pathological and artificial dissociated conditions, is the distinction between the conscious and subconscious at any moment always sharp and precise; it is often rather a matter of vividness and shading, and whether a conscious state is in the focus of attention or in the fringe. Experimental observation confirms introspection in this respect.

In view of the foregoing we can now appreciate a fallacy which has been too commonly accepted in the interpretation of therapeutic facts. It is quite generally held that it is a necessity that the underlying unconscious complexes cannot be modified without bringing them to the "full light of day" by analysis. The facts of everyday observation do not justify this conclusion. The awakening of dormant memories of past experiences is mainly of importance for the purpose of giving us exact information of *what* we need to modify, not necessarily for the purpose of effecting the modification. Owing to the fluidity of complexes, whether unconscious or conscious, our conscious ideas can become incorporated in unconscious complexes. This means that any new setting in which we may incorporate our conscious ideas to give them a new meaning becomes effective in the associations which these ideas have as a dormant complex. The latter is able to assimi-

* I am excluding conditions like split personalities, automatic writing, etc., and refer rather to normal mental processes.

late from the conscious any new material offered to it. Practical therapeutics and everyday experience abundantly have shown this. I have accomplished this, and I believe every therapeutist has done the same time and again. We should be cautious not to overlook common experience in the enthusiasm for new theories and dramatic observations. The difficulty is in knowing what we want to modify, and for this purpose analytical investigations of one sort or another are of the highest assistance, because they furnish us with the required information. If we recover the memories of the unconscious complex our task is easier, as we can apply our art with the greater skill.

When we speak of a setting to an idea we are not entitled to think of it as a sharply defined group of ideas, or sharply limited subconscious process. When we identify it with the residua of past experiences we are not entitled, on the basis of exact knowledge, to arbitrarily make up a selected cluster of residua which shall exclude those and include these residual elements of antecedent associated experiences, and dogmatically postulate the composition of the complex which we call the setting. Analysis by the very limitations of the method fails to permit of such arbitrary selection, and synthetic methods are not sufficiently exact for the purpose. All we can say is that from the residua of various past experiences a complex is sifted out to become the setting. And even then no process is entirely

autonomous and entirely removed from the interfering, directing, and coöperative influence of other processes. Even with simple and purely physiological processes, such as the knee jerk, this is true. Although the knee jerk may be schematically conceived as a simple reflex arc involving the peripheral nerves and the spinal cord, nevertheless other parts of the nervous system—the brain and the spinal cord—provide coöperative processes which take part, and under special conditions take a very active part, in modifying the phenomenon. While we are justified, for the clarifying purposes of exposition, in schematizing the phenomenon by selecting the spinal reflex as the predominant process, yet we do not overlook the coöperative processes which may control and modify the spinal reflex. If this is true of purely physiological processes, it is still more true of the enormously more complex processes of human intelligence.

We may say, then, not only that with our present knowledge and our present methods we are not able to precisely differentiate the settings of ideas, but that it is highly improbable that settings as complexes of residua are with any preciseness functionally entirely autonomous and removed from the influence of other associative processes.

We need further investigations into the psychology and processes of settings, and until we have wider and more exact knowledge it is well not to theorize and still more not to dogmatize. It is an inviting field which awaits the psychologist.

LECTURE XIV

THE PHYSIOLOGICAL MANIFESTATIONS OF EMOTION

Emotion,* more particularly fear, plays so large a part in the psychogenesis and symptomatology of the psychoses that it is desirable to have a clear realization of its physiological and psychological manifestations and of the disturbances of the organism which it can induce. It is not necessary for our purpose to discuss the various theories of the nature of emotion that have been propounded; we need deal only with the *manifestations* of emotion and its effect upon the organism.† We will consider the physiological manifestations first.

When a strong emotion is awakened in consciousness there are a large number of physiological reactions, for the most part visceral, which can be noted. Some of these may be graphically recorded and measured by means of instruments of precision. These physiological reactions are numerous and have been extensively described by Féré ‡ among others. The earlier work of Mosso upon the dis-

* I use the word, not in the strict but in the popular and general sense, to include feeling, indeed all affective states, excepting where the context gives the strict meaning.

† The James-Lange theory is disregarded here as untenable.

‡ La Pathologie des Emotions, 1892.

turbances of the respiration and vasomotor apparatus induced by sensory stimulation is well known.

More recently considerable experimental work has been done, particularly by German investigators, to determine the influence of affective states upon the circulation and respiration.

Modifications of the *peripheral circulation,* manifested through pallor or turgescence of the skin and measured by changes recorded by the plethismograph in the volume of the limbs; modifications of the volume of the *heart* and of the rhythm and force of the beats recorded by the sphygmograph, and of arterial tension measured by the sphygmomonometer are common phenomena. (Fear is more particularly accompanied by pallor, and shame by turgescence—blushing. Anger in some is manifested by pallor and in others by turgescence, and so on.) Changes in rate of the heart-beats belong to popular knowledge. It is not so well known, even to physiologists that the volume of the heart may be affected by emotion. In several series of observations made under conditions of emotional excitement upon a large number of healthy men, candidates for civil service appointments, I recorded in a high percentage not only alterations in the rate and rhythm and force of the heart-beat, but temporary dilatation of the heart lasting during the period of excitement.* This dilatation in some

* Physiological Dilatation and the Mitral Sphincter as Factors in Functional and Organic Disturbances of the Heart, *The American*

cases was sufficient to lead to insufficiency of the mitral valve and to give rise to murmurs. The examination was purposely conducted so as to induce a high degree of emotional excitement, at least in many men. In another series of observations (not published) the arterial tension was measured, and it was found, as would be expected, that an increase of tension accompanied the cardiac excitation under emotion.*

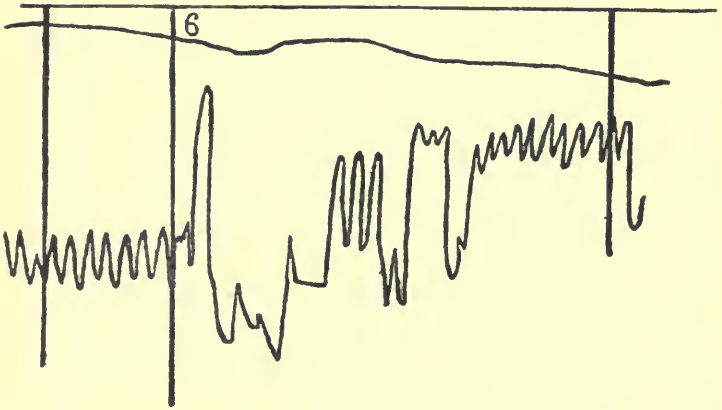

Fig. 2. J., acute katatonic stupor. b is a wave selected from the series in which 6 is sudden call by name. The galvanometer curve (a) is slight, but the change in the pneumograph curve is notable. (Peterson and Jung.†)

Journal of the Medical Sciences, February, 1901; also, The Occurrence and Mechanism of Physiological Heart Murmurs (Endocardial) in Healthy Individuals, *The Medical Record,* April 20, 1889.

* The emotional factor is a source of possible fallacy in all observations on arterial tension and must be guarded against.

† Frederick Peterson and C. G. Jung: Psycho-Physical Investigations with the Galvanometer and Pneumograph, *Brain,* Vol. XXX, July, 1907, p. 153.

As to the *respiratory apparatus* the effect of emotion in altering the rate and depth of respiration may be shown by the pneumograph; by this method the effects of slight emotion that otherwise would escape observation may be detected. Such a disturbance of respiration is shown in the tracing, Fig. 2.

That emotion will profoundly affect the respiration has of course been common knowledge from time immemorial, and has been made use of by writers of fiction and actors for dramatic effect. The same may be said of modifications of the functioning of the whole respiratory apparatus, including the nostrils and the mouth; and likewise of the decrease or increase of secretions (dryness of the mouth from fear, and "foaming" from anger). These are among the well known physiological effects of emotions.

Increase of *sweat* sometimes amounting to an outpour, and alterations in the amount of the various *glandular secretions* (*salivary, gastric,* etc.), and *rigor* are important phenomena.

The remarkable researches of Pawlow * and his co-workers in Russia on the *work of the digestive glands,* and those of Cannon † in America on the *movements of the stomach and intestines* have re-

* The Work of the Digestive Glands (English Translation), London, 1902.

† For a summary of Cannon's work, see his article, Recent Advances in the Physiology of the Digestive Organs Bearing on Medicine and Surgery, *The Medical Journal of Medical Sciences,* 1906, New Series, Vol. CXXXI, pp. 563-578.

vealed that these functions are influenced in an astonishing degree by psychical factors.

Although it has long been known that the sight of food under certain conditions would call forth a secretion of gastric juice in a hungry dog (Bidder and Smith, 1852), and common observation has told us that emotion strongly affects the gastrointestinal functions, increasing or diminishing the secretions of saliva and gastric juice, and even producing dyspeptic disturbances and diarrhœa, it has remained for Pawlow and his co-workers to demonstrate the important part which the "appetite," as a psychical state, plays in the process of digestion. In hungry dogs a large quantity of gastric juice, rich in ferment, is poured out when food is swallowed, and even at the sight of food, and it was proved that this outpouring was due to psychical influences. Simply teasing and tempting the animal with food cause secretions, and food associations in the environment may have the same effect. "If the dog has not eaten for a long time every movement, the going out of the room, the appearance of the attendant who ordinarily feeds the animal—in a word, every triviality—may give rise to excitation of the gastric glands." (Pawlow, p. 73.) This first secreted juice is called "appetite juice," and is an important factor in the complicated process of digestion. "The appetite is the first and mightiest exciter of the secretory nerves of the stomach." (Pawlow, p. 75.) Pawlow's results have been confirmed in man by Hornborg, Umber, Bickel, and

Cade and Latarjet. The mere chewing of appetizing food, for instance, is followed by a copious discharge of gastric juice, while chewing of rubber and distasteful substances has a negative result. Depressing emotions inhibit the secretion of juice (Bickel). More than this, Cannon,* in his very remarkable experiments on the movements of the stomach and intestines, found that in animals (cat, rabbit, dog, etc.), gastric peristalsis is stopped whenever the animal manifests signs of rage, distress, or even anxiety. "Any signs of emotional disturbance, even the restlessness and continual mewing which may be taken to indicate uneasiness and discomfort, were accompanied in the cat by total cessation of the segmentation movements of the small intestines, and of antiperistalsis in the proximal colon." Bickel and Sasaki have confirmed in dogs these emotional effects obtained by Pawlow and Cannon.

The effect of the emotions on the digestive processes is so important from the standpoint of clinical medicine that I quote the following summary of published observations from Cannon: "Hornborg found that when the boy whom he studied chewed agreeable food a more or less active secretion of the gastric juice was started, whereas the chewing of indifferent material was without influence.

* *American Journal of Medical Sciences*, 1906, p. 566. See also "The Influence of Emotional States on the Functions of the Alimentary Canal," by the same writer (*ibid.*, April, 1909) for an interesting résumé of the subject.

"Not only is it true that normal secretion is favored by pleasurable sensations during mastication, but also that unpleasant feelings, such as vexation and some of the major emotions, are accompanied by a failure of secretion. Thus Hornborg was unable to confirm in his patient the observation of Pawlow that mere sight of food to a hungry subject causes the flow of gastric juice. Hornborg explains the difference between his and Pawlow's results by the difference in the reaction of the subjects to the situation. When food was shown, but withheld, Pawlow's hungry dogs were all eagerness to secure it, and the juice at once began to flow. Hornborg's little boy, on the contrary, became vexed when he could not eat at once, and began to cry; then no secretion appeared. Bogen also reports that his patient, a child, aged three and a half years, sometimes fell into such a passion in consequence of vain hoping for food, that the giving of the food, after calming the child, was not followed by any secretion of the gastric juice.

"The observations of Bickel and Sasaki confirm and define more precisely the inhibitory effects of violent emotion on *gastric secretion.* They studied these effects on a dog with an œsophageal fistula, and with a side pouch of the stomach which, according to Pawlow's method, opened only to the exterior. If the animal was permitted to eat while the œsophageal fistula was open the food passed out through the fistula and did not go to the stomach. Bickel and Sasaki confirmed the observation of

Pawlow that this sham feeding is attended by a copious flow of gastric juice, a true 'psychic secretion,' resulting from the pleasurable taste of the food. In a typical instance the sham feeding lasted five minutes, and the secretion continued for twenty minutes, during which time 66.7 c. c. of pure gastric juice was produced.

"On another day a cat was brought into the presence of the dog, whereupon the dog flew into a great fury. The cat was soon removed, and the dog pacified. Now the dog was again given the sham feeding for five minutes. In spite of the fact that the animal was hungry and ate eagerly, there was no secretion worthy of mention. During a period of twenty minutes, corresponding to the previous observation, only 9 c. c. of acid fluid was produced, and this was rich in mucus. It is evident that in the dog, as in the boy observed by Bogen, strong emotions can so profoundly disarrange the mechanisms of secretion that the natural nervous excitation accompanying the taking of food cannot cause the normal flow.

"On another occasion Bickel and Sasaki started gastric secretion in the dog by sham feeding, and when the flow of gastric juice had reached a certain height the dog was infuriated for five minutes by the presence of the cat. During the next fifteen minutes there appeared only a few drops of a very mucous secretion. Evidently in this instance a physiological process, started as an accompaniment of a psychic state quietly pleasurable in character,

was almost entirely stopped by another psychic state violent in character.

"It is noteworthy that in both the positive and negative results of the emotional excitement illustrated in Bickel and Sasaki's dog the effects persisted long after the removal of the exciting condition. This fact Bickel was able to confirm in a girl with œsophageal and gastric fistulas; the gastric secretion long outlasted the period of eating, although no food entered the stomach. The importance of these observations to personal economics is too obvious to require elaboration.

"Not only are the secretory activities of the stomach unfavorably affected by strong emotions; the movements of the stomach as well, and, indeed, the movements of almost the entire alimentary canal, are wholly stopped during excitement." *

So you see that the proverb, "Better a dinner of herbs where love is than a stalled ox and hatred therewith," has a physiological as well as a moral basis.

Nearly any sensory or psychical stimulus can be artificially made to excite the *secretion of saliva* as determined by experimentation on animals by Pawlow.

It is probable that all the *ductless glands* (thyroid, suprarenal, etc.), are likewise under the influence of the emotions. The suprarenal glands secrete a substance which in almost infinitesimal doses has a powerful effect upon the heart and blood ves-

* *American Journal of the Medical Sciences*, April, 1909.

sels, increasing the force of the former and contracting the peripheral arterioles. The recent observations of Cannon and de la Paz have demonstrated in the cat that under the influence of fear or anger an increase of this substance is poured into the circulation.* Cannon, Shohl and Wright have also demonstrated that the glycosuria which was known to occur in animals experimented upon in the laboratory is due (in cats) to the influence of the emotions, very probably discharging through the sympathetic system on the adrenal glands and increasing their secretion.† The glycosuria is undoubtedly due to an increase of sugar in the blood. It is interesting to note, in this connection, that there is considerable clinical evidence that indicates that some cases of diabetes and glycosuria have an emotional origin. The same is true of disease of the thyroid gland (exophthalmic goiter).

Most of the viscera are innervated by the sympathetic system, and the visceral manifestations of emotion indicate the dominance of sympathetic impulses. "When, for example, a cat becomes frightened, the pupils dilate, the stomach and intestines are inhibited, the heart beats rapidly, the hairs of the back and tail stand erect—all signs of nervous discharge along sympathetic paths" (Cannon). Cannon and his co-workers have further made the acute suggestion that, as adrenalin itself is capable

* Cannon and de la Paz: *American Journal of Physiology*, April 1, 1911.

† Cannon, Shohl, and Wright, Ibid., December 1, 1911.

of working the effects evoked by sympathetic stimulation, "the persistence of the emotional state, after the exciting object has disappeared, can be explained" by the persistence of the adrenalin in the blood. There is reason to believe that some of the adrenal secretion set free by nervous stimulation returning in the blood stream to the glands stimulates them to further activity, and this would tend to continue the emotional effect after the emotion has subsided. "Indeed it was the lasting effect of excitement in digestive processes which suggested" to Cannon his investigations.*

According to Féré † the *pupils* may dilate under the influence of asthenic emotions and contract with sthenic emotions. However that may be, the dilatation of the pupils during states of fear may be demonstrated in animals.

The influence of emotion on the *muscular system* need hardly be more than referred to. Tremor, twitchings, particularly of the facial muscles, and other involuntary movements, as well as modifications of the tonus of the muscles, are common effects. All sorts of disturbances occur, ranging from increase of excitability to paralysis. Everyone knows that under the influence of powerful emotion, whether of joy, anger, or fear, there is discharged an increase of energy to the muscles, sometimes of an intensity which enables an individual to

* These effects of adrenalin suggest that the secretion may take some part in pathological anxiety states.

† Pathologie des Emotions, 1892.

exert force of which he is ordinarily incapable. Or this energy, instead of being discharged into the channels being made use of by the will, and so augmenting its effects, may be so discharged as to inhibit the will, and produce paralysis of the will and muscular action.

These muscular vasomotor and secretory changes need not surprise us, as indeed they have a biological meaning. As Sherrington * has pointed out, "there is a strong bond between emotion and muscular action. Emotion 'moves' us, hence the word itself. If developed in intensity, it impels toward vigorous movement. Every vigorous movement of the body . . . involves also the less noticeable cooperation of the viscera, especially of the circulatory and respiratory [and, I would add, the secretory glands of the skin]. The extra demand made upon the muscles that move the frame involves a heightened action of the nutrient organs which supply to the muscles the material for their energy"; and also involves a heightened action of the sweat glands to maintain the thermic equilibrium. "We should expect," Sherrington remarks, "visceral action to occur along with the muscular expression of emotion," and we should expect, it may be added, that through this mechanism emotion should become integrated with vasomotor, secretory, and other visceral functions.

Another physiological effect of emotion ought to be mentioned, as of recent years it has been the ob-

* The Integrative Action of the Nervous System, p. 266.

ject of much and intensive study by numerous students and has been frequently made use of in the clinical study of mental derangements and in the study of subconscious phenomena. I refer to the so-called *"psycho-galvanic reflex."* As an outcome of all the investigations which have been made by numerous students into this phenomenon, it now seems clear that there are two types of galvanic reactions, distinct from each other, which can be recognized. The one type first described by Féré * consists in an increase, brought about by emotion, of a galvanic current made to pass through the body from a galvanic cell. If a very sensitive galvanometer is put in circuit with the body and such a cell, a certain deviation of the needle of course may be noted varying in amplitude according to the resistance of the body. Now, if an idea associated with emotion—i. e., possessing a sufficient amount of affective tone—is made to enter the consciousness of the person experimented upon, there is observed an increased deflection of the needle, showing an increase of current under the influence of the emotion. The generally accepted interpretation of this increase is that it is due to diminished resistance of the skin (with which the electrodes are in contact) caused by an increase of the secretions of the sweat glands. A similar increase of current follows various sensory stimulations, such as the pricking of a

* Note sur les modifications de la résistance électrique sous l'influence des excitations sensorielles et des émotions, *C. R. Soc. de Biologie,* 1888, p. 217.

pin, loud noises, etc. It may be interesting for historical reasons to quote here Féré's statement of his observations, as they seem to be generally overlooked. In his volume, "La Pathologie des Emotions," in 1892, he thus sums up his earlier and later observations: "I then produce various sensory stimulations—visual (colored glasses), auditory (tuning fork), gustatory, olfactory, etc. Whereupon there results a sudden deviation of the needle of the galvanometer which, for the strongest stimulations, may travel fifteen divisions (milliampères). The same deviation may also be produced under the influence of sthenic emotions, that is to say, it is produced under all the conditions where I have previously noticed an augmentation of the size of the limbs, made evident through the plethysmograph. Absence of stimulation, on the contrary, increases the resistance; in one subject the deviation was reduced by simply closing the eyes.

"Since these facts were first described at the Biological Society I have been enabled to make more exact observations by using the process recommended by A. Vigouroux (De la résistance électrique chex les mélancoliques, Th. 1890, p. 17), and I have ascertained that under the influence of painful emotions or tonic emotions the electrical resistance may, in hystericals, instantaneously vary from 4,000 to 60,000 ohms."

It will be noticed that Féré attributed the variations of the current to variations of resistance of the body induced by sensations and emotions.

The method of obtaining the psycho-galvanic reaction may be varied in many ways, the underlying principle being the same, namely, the arousing of an emotion of some kind. This may be simply through imagined ideas, or by expectant attention, sensory stimulation, suggested thoughts, verbal stimuli, etc. According to Peterson and Jung,* "excluding the effect of attention, we find that every stimulus accompanied by an emotion causes a rise in the electric curve, and directly in proportion to the liveliness and actuality of the emotion aroused. The galvanometer is therefore a measurer of the amount of emotional tone, and becomes a new instrument of precision in psychological research." This last statement can hardly be said to be justified, as we have no means of measuring the "liveliness and actuality" of an emotion and, therefore, of co-relating it with a galvanic current, nor have we any grounds for assuming that the secretion of sweat (upon which the diminished resistance of the body presumably depends) is proportionate to the liveliness of the emotion, or, indeed, even that it always occurs. It is enough to say that the galvanic current is in general a means of detecting the presence of emotion.

The second type of galvanic reaction, as shown by Sidis and Kalmus,† does not depend upon the di-

* Psycho-Physical Investigations with the Galvanometer and Pneumograph in Normal and Insane Individuals, *Brain*, Vol. XXX, July, 1907.

† *Psychological Review*, November, 1908, and January, 1909.

minished resistance of the body to a galvanic current passing from without through the body, but is a current originating within the body under the influence of emotion. Sidis and Kalmus concluded that "active psycho-physiological processes, sensory and emotional processes, with the exception of purely ideational ones, initiated in a living organism, bring about electromotive forces with consequent galvanometric deflections." In a later series of experiments Sidis and Nelson * came to the conclusion that the origin of the electromotive force causing the galvanic deflection was in the muscles.† Wells and Forbes,‡ on the other hand, conclude from their own investigation that the origin of the galvanic current is to be found in the sweat gland activity and believe the muscular origin improbable. From a clinical standpoint the question is unimportant.

Sensory disturbances. On the sensory side the effect of emotions, particularly unpleasant ones, in

* The Nature and Causation of the Galvanic Phenomena, *Psychological Review*, March, 1910, *Journal of Abnormal Psychology*, June-July, 1910.

† Having demonstrated the development of electromotive force within the body, these experimenters assumed that every psycho-galvanic reaction was of this type. But plainly, their results do not contradict the phenomenon of diminished resistance of the body to an electric current brought about by emotion stimulating the sweat glands. The evidence indicates, as I have said, two types of psycho-galvanic phenomena.

‡ On Certain Electrical Processes in the Human Body and Their Relation to Emotional Reactions, *Archives of Psychology*, March, 1911.

awakening "thrills" and all sorts of sensations in different parts of the body is a matter of everyday observation. *Nausea, dizziness, headache, pains* of different kinds are common accompaniments. Such reactions, however, largely vary as idiosyncrasies of the individual, and are obviously not open to experimentation or measurement. Whether they should be spoken of as physiological or aberrant reactions is a matter of terminology. They are, however, of common occurrence. In pathological conditions disagreeable sensations accompanying fear, grief, disgust, and other distressing forms of emotion often play a prominent part, and as symptoms contribute to the syndromes of the psychosis. The following quaintly described case quoted by Cannon from Burton's Anatomy of Melancholy is as good as a more modern illustration: "A gentlewoman of the same city saw a fat hog cut up; when the entrails were opened, and a noisome savour offended her nose, she much disliked, and would not longer abide; a physician in presence told her, as that hog, so was she full of filthy excrements, and aggravated the matter by some other loathsome instances, insomuch this nice gentlewoman apprehended it so deeply that she fell forthwith a vomiting; was so mightily distempered in mind and body that, with all his art and persuasion, for some months after, he could not restore her to herself again; she could not forget or remove the object out of her sight." Cannon remarks: "Truly, here was a moving circle of causation, in which the physician himself probably played

the part of a recurrent augmenter of the trouble. The first disgust disturbed the stomach, and the disturbance of the stomach, in turn, aroused in the mind greater disgust, and thus between them the influences continued to and fro until digestion was impaired and serious functional derangement supervened. The stomach is 'king of the belly,' quotes Burton, 'for if he is affected all the rest suffer with him.' "

Such cases could be multiplied many fold from the records of every psychopathologist. I happen by chance to be interrupted while writing this page by a patient who presents herself suffering from a phobia of fainting. When this fear (possibly with other emotions) is awakened she is attacked by nausea and eructation of the gastric contents, and, if she takes food, by vomiting of the meal. (Owing to a misunderstanding of the true pathology by her physician, her stomach was washed out constantly for a period of two years without relief!)

General psychopathology.—In the light of all these well-known physiological effects of emotion it is apparent that when an idea possessing a strong emotional tone, such as fear or its variants, enters consciousness, it is accompanied by a complex of physiological reactions. In other words, fear, *as a biological reaction* of the organism to a stimulus, does not consist of the psychical element alone, but includes a large syndrome of physiological processes.

We can, indeed, theoretically construct a schema which would represent the emotional reaction. This schema would undoubtedly vary in detail in particular cases, according to the excitability of the different visceral functions involved in different individuals and to the mixture of the emotions taking part (fear, disgust, shame, anger, etc.). As one type, for instance, of a schema, taking only the most obtrusive phenomena which do not require special technique for their detection, we would have:

Fear (or one of its variants, anxiety, apprehension, etc., or a compound emotion that includes fear).

Inhibition of thought (confusion).

Pallor of the skin.

Increased perspiration.

Cardiac palpitation.

Respiratory disturbances.

Tremor.

Muscular weakness.

Gastric and intestinal disturbances.

(Blushing or congestion of the skin would replace pallor if the fear was represented or accompanied by shame or bashfulness, etc. (self-debasement and self-consciousness),* or if the affective state was anger.)

On the sensory side we would have various paresthesiæ varying with the idiosyncrasies of the indi-

* Morbid self-consciousness is commonly accompanied by fear and other emotions. Nausea, although the specific manifestation of disgust, not rarely is induced by fear.

vidual, and apparently dependent upon the paths through which the emotional energy is discharged:

"Thrills."

Feeling of oppression in the chest.

Headache.

Nausea (with or without vomiting).

Pains, fatigue, etc.

It is of practical importance to note that attacks of powerful emotions, according to common experience, are apt to be followed by exhaustion; consequently in morbid fears fatigue is a frequent sequela.

Physiological Mimicry of Disease.

Now, theoretically, one or more of these physiological disturbances might be so obtrusive as to be the predominant feature of the syndrome and to mask the psychical element which might then be overlooked. Gastric and intestinal disturbances, for instance, or cardiac distress, might be so marked as not to be recognized as simply manifestations of an emotion, but be mistaken for true gastric, intestinal, or heart disease. Going one step further, if a person had a frequently recurring fear, as is so common, and the physiological symptoms were obtrusively predominant, these latter would necessarily recur in attacks and, overshadowing the psychical element, might well have all the appearance (both to the subject and the observer) of true disease of the viscera.

Now, as a fact this theoretical possibility is just

what happens. It is one of the commonest of occurrences, although it is too frequently misunderstood.* A person, we will say, has acquired—owing to no matter what psychogenetic factor—a recurrent fear. This fear, or, in less obtrusive form, anxiety, or apprehension, is, we will say, of disease—heart disease or insanity or fainting or cancer or epilepsy or what not. It recurs from time to time when awakened by some thought or stimulus from the environment. At once there is an outburst of physiological, i. e., functional disturbances, in the form of an "attack." There may be violent cardiac and respiratory disease, tremor, flushing, perspiration, diar-

* A good example is that of an extreme "neurasthenic," who had been reduced to a condition of severe inanition from inability to take a proper amount of food because of failure of digestion, nausea, and vomiting. Examined by numerous and able physicians in this country and Europe, none had been able to recognize any organic disease or the true cause of the gastric difficulty which remained a puzzle. As a therapeutic measure her stomach had been continuously and regularly washed out. Yet it was not difficult to recognize, after analyzing the symptoms and the conditions of their occurrence, that the disturbances of the gastric functions were due to complex mental factors, the chief of which, emotion, inhibited the gastric function, as in Cannon's experiments, and indirectly or directly, induced the nausea and vomiting. The correctness of this diagnosis was recognized by the attending physician and patient. Sometimes a phobia complicates a true organic disease and produces symptoms which mimic the symptoms of the latter—heart disease, for example. In this case it is often difficult to recognize the purely phobic character of the symptoms. O. H. C. was such a case. Though there was severe valvular disease of the heart, compensation was good and there was little if any cardiac disability. The attacks of dyspnœa and other symptoms were unmistakably the physical manifestation of a phobia of the disease. The phobia had been artificially created by overcautious physicians.

rhœa, sensory disturbances, etc., followed by more or less lasting exhaustion. On the principle of complex building, which we have discussed in a previous lecture, the various physiological reactions embraced in such a scheme as I have outlined tend to become welded into a complex (or association psycho-neurosis), and this complex of reactions in consequence recurs as a syndrome every time the fear is reëxcited. On every occasion when the anxiety recurs, a group of symptoms recurs which is made up of these physical manifestations of emotion which are peculiar to the individual case. The symptoms, unless a searching inquiry is made into their mode of onset, sequence, and associative relations, will appear a chaotic mass of unrelated phenomena; or only certain obtrusive ones, which in the mind of the patient point to disease of a particular organ, are described by him. The remainder have to be specifically sought for by the investigator. The latter, if experienced in such psycho-neuroses, can often from his knowledge of the phenomena of emotion anticipate the facts and in a large degree foretell to the patient the list of symptoms from which he suffers. By those who lack familiarity with these functional disturbances mistakes in diagnosis are frequently made. Disease of the heart, or of the stomach, or of the nervous system is frequently diagnosed when the symptoms are simply the product of emotion. Quite commonly, when the symptoms are less related to particular organs, but more conspicuously embrace vasomotor, sensory,

digestive disturbances (inhibition of function), and fatigue, the syndrome is mistaken for so-called *neurasthenia.** Thus it happens that in recurrent morbid fears—known as the phobias or obsessions—a group of symptoms are met with which at first sight appear to be unrelated bodily disturbances, but which when analyzed are seen to be only a certain number of physiological manifestations of emotion welded into a complex. On every occasion that the fear recurs this complex is reproduced.

It now remains to study the effect of the emotions on the psychical side. This we shall do in the next lecture.

* One has only to compare routine out-patient hospital records with the actual state of patients to verify the truth of this statement. For purposes of instruction I have frequently done this before the class. The true nature of the psycho-neurosis and the irrelevancy of the routine record and diagnosis have, I believe, been commonly made manifest. Sometimes, however, of course, phobias complicate other diseases, and we have a mixed symptomatology.

LECTURE XV

INSTINCTS, SENTIMENTS, AND CONFLICTS

It is generally agreed that emotions proper (as distinguished from other affective states) may be divided into those which are primary (anger, fear, disgust, etc.), and those (jealousy, admiration, hatred, etc.), which are compounded of two or more primary emotions. McDougall has made a great contribution to our knowledge in having made clear that a primary emotion is not only instinctive, but is the central or psychical element in a reflex process consisting, besides, of an ingoing stimulus and an outgoing impulse. The whole process is the *instinct.** It is of course innate, and depends on con-

*. . . "Every instinctive process has the three aspects of all mental processes, the cognitive, the affective, and the conative. Now, the innate psychophysical disposition, which is an instinct, may be regarded as consisting of three corresponding parts, an afferent, a central, and a motor or efferent part, whose activities are the cognitive, the affective, and the conative features respectively of the total instinctive process. The afferent or receptive part of the total disposition is some organized group of nervous elements or neurones that is specially adapted to receive and to elaborate the impulses initiated in the sense-organ by the native object of the instinct; its constitution and activities determine the sensory content of the psychophysical process. From the afferent part the excitement spreads over to the central part of the disposition; the constitution of this part determines in the main the distribution of the nervous impulses,

genital prearrangements of the nervous system. The central element, the emotion, provides the conative or impulse force which carries the instinct to fulfilment. It is the motive power, the dynamic agent that executes, that propels the response which follows the stimulus. Though we speak of anger and fear, for example, as instincts, McDougall is unquestionably right in insisting that more correctly speaking the activated instinct is a process in which the emotion is only one factor—the psychical. The instincts of anger and fear should more precisely be termed respectively "pugnacity with the emotion of anger" and "flight with the emotion of fear." In the one case, the emotion, as the central reaction to a stimulus, by its conative force impels to pugnacity; in the other fear impels to flight; and so with the other instincts and their emotions which I would suggest may be termed arbitrarily the *emotion-instincts,* to distinguish them from the more general instincts and innate dispositions with which animal psychology chiefly deals, and in which the affective

especially the impulses that descend to modify the working of the visceral organs, the heart, lungs, blood vessels, glands, etc., in the manner required for the most effective excitation of the instinctive action; the nervous activities of this central part are the correlates of the affective or emotional aspect or feature of the total physical process. The excitement of the efferent or motor part reaches it by the way of the central part; its construction determines the distribution of impulses to the muscles of the skeletal system by which the instinctive action is effected, and its nervous activities are the correlates of the conative element of the physical process, of the felt impulse to action." William McDougall. An introduction to Social Psychology, p. 32.

element is feebler or has less of the specific psychical quality. For brevity's sake, however, we may speak of the instinct of anger, fear, tender feeling, etc. Of course they are biological in their nature.

This formulation, by McDougall, of emotion as one factor in an instinctive process must be regarded as one of the most important contributions to our knowledge of the mechanism of emotion. It can scarcely be traversed, as it is little more than a descriptive statement of observed facts. It is strange that this conception of the process should have been so long overlooked. Its value lies in replacing vagueness with a precise conception of one of the most important of psychological phenomena, and enables us to clearly understand the part played by emotion in mental processes. It also shows clearly the inadequacy of the objective methods of normal psychology when attempting to investigate emotion by measuring the discharge of its impulsive force in one direction only, namely, the disturbances of the functions of the viscera (vasomotor, glandular, etc.). It discharges also along lines of mental activity and conduct.

When studying the organization of complexes, and in other lectures, we saw, as everyone knows in a general way, that *affects may become linked with ideas,* and that the force derived from this association gives to the ideas intensity and conative influence. Further, it was developed that the linking of a strong affect tends to stronger registration and conservation of experiences. This linking of an af-

fect to an idea is one of the foundation stones of the pathology of the psycho-neuroses. One might say that upon it "hangs all the law and the prophets."

Inasmuch as a sentiment, even in the connotations of popular language, besides being an idea always involves an affective element, it is obvious that *a sentiment is an idea of an object with which one or more emotions are organized.* But, obvious as it is, it remained for Mr. Shand, as McDougall reminds us, to make this precise definition. It is hardly a discovery as the latter puts it, as the facts themselves have been long known; but it is a valuable definition and its value lies in helping us to think clearly. Nearly every idea, if not every idea, has an affective tone of some kind, or is one of a complex of ideas endowed with such tone. This tone may be weak so as to be hardly recognizable, or it may be strong. Now, if emotion is one factor in an instinctive process, it is evident that a sentiment more precisely is an idea of an object linked or organized with one or more "emotion-instincts." As McDougall has precisely phrased it, "A sentiment is an organized system of emotional dispositions centered about the idea of some object." The impulsive force of the emotional dispositions or linked instincts becomes the conative force of the idea, and it is this factor which carries the idea to fruition. This is one of the most important principles of functional psychology. Its value can scarcely be exag-

gerated. Without the impulse of a linked emotion ideas would be lifeless, dead, inert, incapable of determining conduct. But when we say that an emotion becomes linked to, i. e., organized with that composite called an idea, *we really mean* (*according to this theory of emotion*) *that it is the whole instinct, the emotional innate disposition of which the emotion is only a part that is so linked.* The instinct has also afferent and efferent activities. The latter is an impulsive or conative force discharged by the emotion. Thus the affective element of an instinctive process—a process which is a biological reaction—provides the driving force, makes the idea a dynamic factor, moves us to carry the idea to fulfilment. As McDougall has expressed it:

"We may say, then, that directly or indirectly the instincts are the prime movers of all human activity; by the conative or impulsive force of some instinct (or of some habit derived from some instinct), every train of thought, however cold and passionless it may seem, is borne along toward its end, and every bodily activity is initiated and sustained. The instinctive impulses determine the ends of all activities and supply the driving power by which all mental activities are sustained; and all the complex intellectual apparatus of the most highly developed mind is but a means toward these ends, is but the instrument by which these impulses seek their satisfactions, while pleasure and pain do but serve to guide them in their choice of the means.

"Take away these instinctive dispositions with their powerful impulses, and the organism would become incapable of activity of any kind; it would lie inert and motionless like a wonderful clockwork whose mainspring had been removed, or a steam engine whose fires had been drawn. These impulses are the mental forces that maintain and shape all the life of individuals and societies,

and in them we are confronted with the central mystery of life and mind and will." *

Furthermore *the organization of the emotions with ideas to form sentiments is essential for self-control and regulation of conduct,* and becomes a safeguard against mental, physiological, and social chaos.

"The growth of the sentiments is of the utmost importance for the character and conduct of individuals and of societies; it is the organization of the affective and conative life. In the absence of sentiments our emotional life would be a mere chaos, without order, consistency, or continuity of any kind; and all our social relations and conduct, being based on the emotions and their impulses, would be correspondingly chaotic, unpredictable, and unstable. It is only through the systematic organization of the emotional dispositions in sentiments that the volitional control of the immediate promptings of the emotions is rendered possible. Again, our judgments of value and of merit are rooted in our sentiments; and our moral principles have the same source, for they are formed by our judgments of moral value." †

Summing up, then, we may say *one of the chief functions of emotion* is to provide the conative force which enables ideas to fulfill their aims, and one of the chief functions of sentiments to control and regulate the emotions.

Besides the instinctive dispositions proper there are other innate dispositions which similarly provide conative force and determine activities. For

* Social Psychology, p. 44.
† Ibid, p. 159.

the practical purposes of the problems with which we are concerned, the conative or impulsive forces of all such innate dispositions and the sentiments which they help to form are here, it should be understood, considered together and included under instincts.

The conative function of emotion.—I shall take up in a later lecture * (in connection with the psychogenesis of multiple personality) the instincts and sentiments for discussion in more detail. The point to which I wish in this connection to call attention is that when a simple emotion-instinct, or an idea linked with an instinct (a sentiment) is awakened by any stimulus, *its impulsive force is discharged in three directions:* the *first* is toward the excitation of those articulated movements and ideas which guide and carry the instinct to fruition—to fight in the case of anger, to flee in the case of fear, to cherish in the case of love, etc. *Second* (accessory to the first) the excitation of many of the various visceral functions which we have reviewed reinforces the instinctive movements; e. g., for pugnacity or flight the increased respiration and activity of the heart increase the supply of oxygen and blood to the muscles; the secretion of sweat regulates the temperature during increased activity, the increased secretion of adrenalin and the increased secretion of sugar may, as Cannon suggests, respectively keep up the emotional state (after the cause of the fear

* Not included in this volume.

or anger has subsided) and meet the demand of the muscles for an extra supply of food, etc.

Later experiments of Cannon seem to show that the adrenal secretion removes the fatigue of muscles; and, further, that stimulation of the splanchic nerves will largely recover fatigued muscles, increasing the efficiency as much as 100 per cent.* As emotion discharges its impulses along splanchic pathways to the adrenal glands, the inference as to the function of emotion in overcoming fatigue is obvious.

As to the *sensory accompaniments of emotion,* it is quite reasonable to suppose that their rôle is to supplement and reinforce in consciousness the affect, thereby aiding in arousing the individual to a full appreciation of the situation and to such voluntary effort (whether to guide and assist the instinct to its fulfillment or to repress it) as, in the light of past experiences, his judgment dictates. These sensory disturbances on this theory act as additional warnings in consciousness where the affect proper might be too weak.† Their function would be like that of pain in the case of organic disease. Pain is a biological reaction and a warning to the individual to rest the diseased part,‡ as well as a danger signal.

The *third* direction which the discharge of the

* Personally communicated.

† This theory of the part played by the sensory accompaniments of visceral activity I would suggest as a substitute for the James-Lange theory.

‡ Hilton: Rest and Pain.

impulsive force of the emotion takes is toward the repression of the conflicting conative force of such other emotions as would act in an antagonistic direction.* The utility of the discharge in this direction is supplementary to that of the excitation of the visceral functions: *the former protects against the invasion of counteracting forces, the latter strengthens the force of the impulse in question.*

Conflicts thus arise. When an emotion is aroused a conflict necessarily occurs between its impulse and that of any other existing affective state, the impulse of which is antagonistic to the aim of the former. Consequently instincts and sentiments which, through the conative force of their emotion, tend to drive the conduct of the individual in a course in opposition to that of a newly aroused emotion (instinct) meet with resistance. Whichever instinct or sentiment, meaning whichever impulse, is the stronger necessarily downs the other; inhibits the central and efferent parts of the process—ideas, emotions and impulses—though the afferent part conveys the stimulus to the central factor. Thus processes of thought to which the inhibited sentiment or instinct would normally give rise, or with which it is systematized, are likewise inhibited and behavior correspondingly modified. These statements are only descriptive of what is common experience. If one recalls to mind the principal primary emotions (instincts) such as the sexual, an-

* Note analogues in Sherrington's mechanism of the spinal reflexes.

ger, fear, tender feeling, hunger, self-abasement, self-assertion, curiosity, etc., this is seen to be an obvious biological truth.* Fear is suppressed by anger, tender feeling, or curiosity (wonder), and *vice versa;* hunger and the sexual instinct by disgust.

What is true of the primitive instincts and their primary emotions is also true of compound instincts (emotions) and of sentiments, i. e., ideas about which one or several emotions are systematized. We may, therefore, for brevity's sake, speak of a conflict of ideas or sentiments or emotions or instincts indiscriminately. In other words, *any affective state may be suppressed by conflict with another and stronger affective state.* A timid mother, impelled by the parental instinct, has no fear of danger to herself when her child is threatened. The instinct of pugnacity (anger) in this case not being antagonistic (in conflict) is not only not suppressed but may be awakened as a reaction to aid in the expression of the parental instinct. *Per contra,* when anger would conflict with this instinct, as when the child does wrong, the anger is suppressed by the parental instinct. Conversely, the sentiment of love for a particular person may be completely suppressed by jealousy and anger. Hatred of a person may expel from consciousness previous sentiments of sympathy, justice, pity, respect, fear, etc. The animal under the influence of the parental in-

* I follow in the main McDougall's classification as sufficiently adequate and accurate for our purposes.

stinct may be incapable of fear in defense of its young, particularly if anger is excited. Fear may be suppressed in an animal or human being if either is impelled by great curiosity over a strange object. Instead of taking to flight, the animal may stand still in wonder. Similarly in man, curiosity to examine, for example, an explosive—an unexploded shell or bomb—inhibits the fear of danger often, as we know, with disastrous results. The suppression of the sexual instinct by conflict is one of the most notorious of the experiences of this kind in everyday life. This instinct cannot be excited during an attack of fear and anger, and even during moments of its excitation, if there is an invasion of another strong emotion the sexual instinct at once is repressed. Under these conditions, as with other instincts, even habitual excitants can no longer initiate the instinctive process. Chloe would appeal in vain to her lover if he were suddenly seized with fright or she had inadvertently awakened in him an intense jealousy or anger. Similarly the instinct may be suppressed, particularly in men, as every psycho-pathologist has observed, by the awakening of the instinct of self-subjection with its emotion of self-abasement (McDougall) with fear, shown in the sentiments of incapacity, shame, etc. The authors of *"Vous n'avez rien à declarer"* makes this the principal theme in this laughable drama. Indeed the principle of the suppression of one instinct by conflict with another has been made use of by writers of fiction and drama in all times.

This principle of inhibition by conflict allows us to understand the imperative persistence (if not the genesis) of certain sexual perversions in otherwise healthy-minded and normal people who have a loathing for such perversions in other people but can not overcome them in themselves. H. O., for example, has such a perversion, and yet the idea of this perversion in another person excites a lively emotion of disgust. In other words, at bottom, as we say, she is right-minded. How then account for the continuance of a self practice which she reprobates in another, censures in herself, and desires to be free of, and why does not the instinct of repulsion, and the sentiment of self respect, etc., act in herself as a safeguard? Introspective examination shows that when the sexual emotion is awakened, disgust and the sentiments of pride and self respect are suppressed, and the momentarily activating instinct determines all sorts of sophistical reasoning by which the perversion is justified to herself. As soon as the instinct accomplishes its aim it becomes exhausted, and at once intense disgust, meeting with no opposition, becomes awakened and in turn determines once more her right-minded ideas. Based upon this mechanism one therapeutic procedure would be to organize artificially so intense sentiments of disgust for the perversion and of self-respect that they would suppress the sexual impulse.*

Likewise the intense religious emotions (awe, reverence, self-abasement, divine love, etc.) may, if

* In fact, this was successfully done.

sufficiently strong, suppress the opposing instincts of anger, fear, play, and self-assertion, and emotions compounded of them. Examples might be cited from the lives of religious martyrs and fanatics.

If it is true that "the instincts are the prime movers of all human activity," and that through their systematic organization with ideas into sentiments they are so harnessed and brought under subjection that they can be utilized for the well-being of the individual; and if through this harnessing the immediate promptings of the emotions are brought under volitional control, then *all conduct, in the last analysis, is determined by the conative force of instincts* * (and other innate dispositions) harnessed though they be to ideas. For though volition itself can control, reinforce, and determine the particular sentiment and thus govern conduct,—reinforce, for instance, a weaker abstract moral sentiment so that it shall dominate any lower brutish instinct or sentiment with which it conflicts, still, volition must be a more complex form of conation and itself issue from sentiments.

We need not enter into this troublesome problem of the nature of the will;† nor does it concern us.

* For purposes of simplification I leave aside feelings of pleasure and pain, excitement and depression, for though their main functions may be only to guide or shape the actions prompted by the instincts, as McDougall affirms, still I think there is sound reason to believe that feelings also have conative force and are coöperative impulsive factors.

† McDougall has proposed the ingenious theory that that which we understand, properly speaking, by "will" is a complex form of

It is enough for our purpose to recognize that volition can reinforce a sentiment and thus take part in conflicts. In this way undesirable instincts and sentiments can be voluntarily overcome and inhibited or repressed and mental processes and conduct determined.

Nor are we concerned here with conduct which pertains more properly to social psychology. Our task is much more limited and simple, namely to inquire into the immediate conscious phenomena provoked by emotion, just as we have studied the physiological phenomena. We have seen that one such phenomenon is inhibition or repression of antagonistic instincts and sentiments provoked by conflict. (We shall see later that a conflict may arise

conation issuing from a particular sentiment, viz., the complexly organized sentiment of self (''self-regarding sentiment''). The behavior immediately determined by the primitive instincts and other sentiments cannot be classed as volition, but should be regarded as simple instinctive conation. When, therefore, the will reinforces a sentiment and determines conduct it is the self-regarding sentiment which provides the ''volitional'' impulse and is the controlling factor. If this theory should stand it would give a satisfactory solution of this difficult question. Perhaps it receives some support on the part of abnormal psychology in that certain observations seem to show, if I correctly interpret them, that self-consciousness is a complex capable of being dissociated like any idea or sentiment. I shall presently describe a quasi-pathological state which may be called depersonalization. In this state the ''conscious intelligence'' present is able to think and reason logically and sanely, is capable of good judgments, and has an unusually large field of memory, in short, is a very intelligent consciousness; nevertheless, it exhibits a very strange phenomenon: it has lost all consciousness of self; it has no sense of personality, of anything to which the term ''I'' can be applied. This sentiment seems to be absolutely dissociated in this state.

between a conscious and an entirely subconscious sentiment with similar resulting phenomena.)

Repression of individual instincts may be lasting.—The repressions resulting from conflict which we have just been considering have been of a temporary nature lasting only just so long as the conflict has lasted. It is instructive to note that just as an instinct can be cultivated until it becomes a ruling trait in the character, so it can be permanently repressed, or so intensely repressed that it cannot be awakened excepting by unusual excitants or under unusual conditions. Such a persisting repression may be brought about either directly by volitional conflict or indirectly through the cultivation of antagonistic sentiments. The cultivation of an instinct is a common enough observation. Every one can point to some one of his acquaintance who has so fostered his instinct of anger or fear, has so cultivated the habit of one or the other reaction that he has become the slave of his emotion. Conversely, by the conative force of the will, and still more successfully by the cultivation of appropriate moral and religious and other sentiments, and complexes or "settings" systematized about those sentiments, a person can inhibit any instinct or any sentiment organized with that instinct. A bad-tempered person can thus, if he chooses, become good-tempered; a coward, a brave person; a person governed by the instinct of self-subjection can repress it by the cultivation of sentiments of self-assertion, and so on.

The complete repression of unchristian instincts and sentiments is the acquired characteristic of the saintly character. The cultivation and repression of character traits and tendencies along these lines obviously belong to the domains of the psychology of character, social psychology, and criminology. But the persisting repression of at least one instinct—the sexual instinct—may take on pathological significance * while that of sentiments may lead to pathological dissociation and to the *formation of disturbing subconscious states.* To this latter type of repression we shall presently return.

That the sexual instinct may be involuntarily and persistently repressed by conflict is shown by the following case:

F. S. presented herself at the hospital clinic because of hysterical epileptiform attacks of six months' duration. The attacks, which had been caused by an emotional trauma, were easily cured by suggestion. After recovery she fell into lamentations over the fact that she was sterile owing to both ovaries having been removed three years be-

* The repression of the sexual instinct and of sexual wishes plays the dominant rôle in the Freudian psychology. If a wish may be correctly defined psychologically as the impulsive force of a sentiment striving toward an end plus the pleasurable feeling resulting from the imagined attainment of that end, i. e., the imagined gratification of the impulse, then the repression of a wish belongs to the phenomena of repressed sentiments rather than of primitive instincts. This distinction, I think, is of some importance, as will appear when we consider subconscious sentiments.

fore because of pelvic disease. Just before the operation she had also suffered from an emotional trauma (fear). Although complete recovery from her symptoms had followed the operation, the sexual instinct had been abolished for three years. She was now much distressed over her inability to have children, complaining it had led to domestic infelicity, and apprehending divorce which had been threatened on the ground of her sterility. Having confidence in the strength of certain fundamental principles of human nature, and disbelieving the reasons alleged by the husband for divorce, I was able to restore domestic felicity, as well as demonstrate the psycho-physiological principle that the instinct was not lost but only inhibited. A single suggestion in hypnosis, psychologically constructed so as to bear a strong conative impulse that would overcome any other conflicting affective impulses and carry itself to fruition, restored not only the lost function * but conjugal happiness. That the instinct had only been inhibited is obvious. Whether the repressing factor had been fear or an involuntary auto-suggestion was not determined.

The following case is instructive not only because of the lasting dissociation of this instinct as a

* In making use of suggestion for therapeutic purposes it is essential to construct one with strong emotional tones and pleasurable and exalting feelings for the purposes of increasing resistances to contrary impulses, and carrying the suggestion to fruition. This I believe to be one of the secrets of successful suggestive procedure. The construction of an effective suggestion is an art in itself and must be based on the psychological conditions existing in each case.

result of a conflict, but because the dissociation was volitionally and intentionally effected as a revenge. Other interesting features are the transference of the repressing revenge affect to an object (clothes which became an amulet or fetish to protect from sexual approaches, and the building of a complex ("raw oyster") which became the bearer of the repressing force. X. Y. Z. received a deep wound to her pride on the first night of her honeymoon when her husband forgot his bride of a few hours who was awaiting him in the nuptial chamber. Happening to meet in the hotel some political acquaintances after the bride had retired, he became absorbed in a political discussion and—forgot! When he appeared after a prolonged absence and presented his excuses she was hurt in her pride and offended to think that she was of so little importance to him that he could become interested in talking politics.* There was anger too, and she vowed to herself to show, or, to use her own words, she "would be hanged if" she would show that she had any liking for or any interest in the marital intimacy. (She had never hitherto experienced any sexual feelings and, like most young girls, was entirely ignorant of the physical side. Nevertheless, from what she had been told, she had idealized the

* Of course this attitude is not to be viewed as an isolated event standing all alone by itself. It must be read like nearly all events of life in relation to a series of antecedent events. These, to her, had denoted indifference, and now on this crucial occasion formed the real setting and gave the offensive meaning to her spouse's forgetfulness.

spiritual union of husband and wife and anticipated pleasurable experiences.) So purposely she repressed any interest, made herself absolutely indifferent to her spouse's amorous attentions and experienced absolutely no sexual feeling; and so it continued for some days. In view of what later happened, and what we know of conflicts, we must believe that the impulses which carried her volition to fruition came from the emotions of anger, pride, and revenge.

Then one afternoon, just after she had finished dressing herself preparatory to going out, her husband came into her room and made advances to her. The idea appealed to her and she became emotionally excited at the thought. But in the middle of the act when the libido began to be aroused, suddenly she remembered that she had been snubbed at the first and that her rôle was to show no liking or interest. There were reawakened the emotions of pride, anger, and revenge, although not malicious revenge. Impelled by these emotions she actually gave herself suggestions to effect her purpose—a determination to get square with the past. She said to herself, "I must not like it; I must put it away back in my mind, I must become flabby as an oyster." Thereupon she became "perfectly limp and uninterested and the feelings of flabbiness came over" her, and the beginning sexual feeling subsided at once. (That day she had eaten some raw oysters and had been impressed by them as the essence of flabbiness.) She admitted having con-

tinued during succeeding years to cherish this revengeful feeling as to the sexual relation—to get square with the past. She defended it, however, (although admitting the childishness of the original episode) on the ground that the slight to her pride must be viewed in connection with a long series of antecedent experiences. These must therefore be viewed as the setting which gave meaning to her idea of sexual relations with her husband. After this at the sexual approach under conventional marital conditions she for a time always volitionally induced this flabby "raw-oyster" sensation and feeling. Later it would automatically arise at the first indication or suggestion of the approach and counteract the libido. It was now no longer necessary to be on guard, knowing she could not be taken unawares. The consequence has been that the patient has never consciously experienced any sexual feeling beyond those first beginnings at the time of the experience when she was fully dressed. The patient can produce the "raw-oyster" state at will and exhibited it voluntarily during the examination. The state as then observed was one of lethargy or extreme relaxation. There was no general anæsthesia; pinching and pricking was felt perfectly, but, as she remarked, they carried no sensation of discomfort. "I do not care at the moment," she explained, "what any one does to me; no sensation would cause pleasure or discomfort." To arouse the state she thinks of the sexual approach first, and then the state comes. The sexual instinct has

never been aroused by reading, or associative ideas of any kind. "It does not exist," to quote her words.

Clothes became an amulet of protection in the following way: Ever since that afternoon when she was taken unawares in her clothes (and "almost liked it") she realized and feared that sexual approaches when she was fully clothed might arouse the sexual instinct. Consequently she was more on her guard when fully clothed than at night for fear of being taken unawares. The idea that she must be on her guard when clothed became fixed, and, at first, when in this condition, she was always on her guard ready to defend herself by *pugnacity*. Then any approach at such times, if accompanied by physical contact, awakened an instinctive reaction which became a defense; it aroused the instincts of fear and anger. Any affectionate demonstration suggestive of the approach on the part of her husband would arouse these defensive instincts. On the other hand, when half dressed there has been no such ebullition of emotion; she has in consequence always believed that having clothes on would protect her against admirers. Indeed, as a fact, this is so, for any show of affection from any one manifested by a touch, even the friendly pat of the hand, will cause an unnecessary and unreasonable outburst of uncontrollable anger, such as to astonish and startle the offender. Clothes, becoming thus a sentiment in which the instincts of flight and pugnacity are incorporated, have also become a pro-

tection in themselves—an amulet to ward off danger.

What reason, it may be asked, is there for believing that the sexual instinct really exists in this case, and is only repressed or dissociated? I may not state all the reasons; it is sufficient to say that the evidence is to be found in dreams. The large number of sexual dreams which the subject has experienced, many of them accompanied by realistic sexual manifestations and not symbolic only, leave no doubt of this fact.*

Conflicts with subconscious sentiments. Thus far we have been considering conflicts between sentiments and emotional processes which have been in the full light of consciousness. But in previous lectures we have seen that ideas with strong emotional tones may be dissociated and function below the threshold of consciousness as coconscious processes. It is theoretically possible, therefore, that conflicts might arise between a dissociated coconscious sentiment and one that is antagonistic to it in consciousness. To appreciate this theoretical condition let me point out that there is one important *difference between the ultimate consequences of the repression of an instinct and of a sentiment.*

* Notwithstanding the frequency with which asexuality is met with in women, I am strongly inclined to the opinion that the sexual instinct in the sex is never really absent, excepting, of course, in late life and in organic disease. No woman is born without it. When apparently absent it is only inhibited or dissociated by the subtle influences of the environment, education, conflicting sentiments, etc.

If an instinct is repressed (it being only an innate disposition) it ceases to be an active factor in the functioning organism. It is inhibited. A stimulus that ordinarily suffices to excite it fails to do so, and it may respond only to an extraordinarily powerful stimulus, or perhaps none will awaken it. Thus abstinence from food fails to awaken a sense of hunger in a person who has lost this instinct for any reason, even though appetizing food be placed before him.* Similarly anger, or fear, or tender emotion, or self-assertion, or disgust, in certain persons cannot be awakened excepting by very unusual stimuli. In other words, the psycho-physiological reflex is completely or relatively in abeyance just as much so as is an organic reflex (e. g., the knee-jerk) which has been inhibited. Normally, of course, it is rare for an instinct to be absolutely inhibited excepting temporarily, as has been explained, during a conflict with another instinct. In certain pathological conditions (e. g., dissociated personality), almost any instinct may be persistently inhibited. In normal conditions there is, however, one exception, namely the sexual instinct, which, as we have seen from instances cited, may be inhibited during long periods of time. In women this inhibition is common and is effected, as I believe, by the subtle and insensible influence of the environment of the child and by social education, in other words, by the social taboo. Wherever

* A distinction should be made between hunger and appetite. Food may excite appetite, although hunger has been appeased.

inhibition occurs observation would seem to show that the psycho-physiological function has ceased to take part in the functioning organism.

With sentiments, however, the case stands differently. A sentiment, being an idea about which a system of emotional dispositions has been organized, when repressed by conflict, or when simply out of mind, whether capable of reproduction as memory or not, may, like all ideas, still be conserved, as we have seen, as an unconscious neurogram. As we have also seen, so long as it is conserved it is still a part of the personality. Even though repressed it is not necessarily absolutely inhibited but may be simply dissociated and then be *able to take on dissociated subconscious activity.* As a subconscious process the idea continues still organized with its emotional dispositions, and the conative forces of these, under certain conditions, may continue striving to give expression to the idea. We have already become familiar with one phenomenon of this striving, namely, the emerging into consciousness of the emotional element of the sentiment while the idea remains subconscious, thus producing an unaccountable fear or joy, feelings of pleasure or pain, etc. (p. 381).

1. This being so, it having been determined that *under certain conditions* any conserved experience may become activated as a dissociated subconscious process, it is *theoretically* quite possible that the impulses of an activated subconscious sentiment might come into conflict with the impulses of

a conscious process—the two being antagonistic. The resulting phenomena might be the same as when both factors to the contest are in consciousness. In such a conflict if the impulsive force of the subconscious sentiment is the stronger the conscious ideas, sentiments, and feelings—in short, the conscious process—would be repressed, and *vice versa.* Or if the subconscious sentiment got the worst of the conflict and could not repress the conscious process, the former, being dissociated and an independent "automatic" process, might theoretically induce various other phenomena in the effort to fulfil its aim. If it could not directly overcome the impulses of the conscious process it might circumvent the latter by inducing mental and physiological disturbances which would indirectly prevent the conscious impulses from fulfilling their aim; e. g., inhibition of the will, dissociation or total inhibition of consciousnes, amnesia for particular memories, motor phenomena interfering with normal activity, etc. The subconscious sentiment engaging in such a conflict could be excited to activity by any associative antagonistic idea in consciousness. It should be noted that the subject being entirely unaware of the subconscious process would not know the cause of the resulting phenomena.

2. Now, in fact, *such hypothetical conflicts and phenomena are actually observed* in very neat and precise form *under experimental conditions,* particularly in pathological or quasi-pathological sub-

jects. These conditions are particularly instructive as they allow us to clearly recognize the subconscious character of the conflicting process and detect the exact sentiment concerned therein.

The following experiment illustrative of such a conflict between a conscious and subconscious process I have repeated many times in one subject with the same resulting phenomenon. It has been demonstrated on several occasions to psychologists and others. On the first occasion when the phenomenon was observed it was entirely spontaneous and unexpected as also has since been frequently the case.

B. C. A. in one phase of alternating personality (B) was asked to mention a certain complex of ideas which was known to have been organized about a distressing "sentiment" in another phase (C) causing considerable unhappiness. This sentiment included a strong emotion of pride in consequence of which she had in the C phase intense objections to revealing these ideas. As she herself said, she "would have gone to the stake first." Phase B has no such sentiment, but on the contrary the ideas in question were only amusing to her.*

* Note that the same idea forms different sentiments in different phases or moods, according to the emotions with which it is linked. In this case, in phase C, it is linked with mortification, self-abasement, possibly anger, pride, and feelings of pain and depression; in phase B, with joyful emotions and feelings of pleasure and excitement. Also note that the former sentiment, although out of mind at the time of the observation, is conserved in the unconscious.

In phase B, therefore, she not only had no objection to revealing the sentiment distressing to C but desired for therapeutic reasons to do so. In accordance with this difference of sentiments the difference in the attitude of mind in the two phases toward the same experience was quite striking. The impulse in the one was to conceal the experiences and sentiment, in the other to divulge them.

Now, in reply to an interrogatory as to what was distressing in the C phase, B begins to mention the sentiment. At once, and to her astonishment, her lips and tongue are tied by painful spasms involving, also, the throat muscles. She becomes dumb, unable to overcome the resistance. She struggles in vain to speak. When she gives up the struggle to pronounce the forbidden words she speaks with ease on other subjects saying "something prevented me from speaking." Each time that she endeavors to turn State's evidence and to peach on herself, the same struggle is repeated. When she persists in her effort, using all her will-power, the effect of the conflicting force extends to consciousness. Her thoughts become first confused, then obliterated, and she falls back in her seat limp, paralyzed, and apparently unconscious. The thoughts to which she strove to give expression have disappeared. She now cannot even will to speak.

But she is not really unconscious, it is only another phase; there is only a dissociation or inhibition of the consciousness comprising the system of ideas making up the B phase and an awakening of

another restricted system. When automatic writing is tried, it is found that a limited field of consciousness is present in which are to be found the ideas which opposed the resistance. A precise statement of the opposing factors (volition) which offered the resistance and brought about the conflict, the spasm of the vocal apparatus, and finally inhibition or dissociation of consciousness, is obtained from this dissociated restricted field.*

This phenomenon carries its own interpretation on its face and cannot be doubted. Certain sentiments, for the moment dormant and outside the focus of awareness of the subject, are "struck" or stimulated by memories within that focus. The conative force of the conscious wishes to which the subject seeks to give expression meets with the resistance of a similar and more powerful force from the previously dormant sentiment. The latter carries itself to fulfilment and *controls the vocal apparatus at first, and then, finding itself likely to be overcome by the will-power of the personality, annihilates the latter by the inhibition and dissociation of consciousness.*

Various forms of the same phenomenon of conflict with subconscious processes I have experimentally demonstrated in Miss B. and O. N. Spontaneous manifestations of the same have also

* At first the subject (B) had no anticipation or supposition that such a conflict would occur. Later she learned after repeated experiences to anticipate the probable consequences of trying to tell tales-out-of-school.

been frequently observed in all three subjects. In the published account of Miss B.* numerous examples are given. I will merely refer to the attacks of aboulia, the dissociations of consciousness and inhibition of thought, and of speech resulting in stuttering and dumbness, the inhibition of motor activity, the induction of systematized anesthesia and alexia, etc. In the prolonged study of the case I was the witness, I was going to say, of innumerable exhibitions of such manifestations, and the book is replete with examples of conflicts between opposing mental processes. B. C. A. in her account, "My Life as a Dissociated Personality," † has described similar spontaneous phenomena. It is worth noting in this connection that the commonplace phenomena of systematized anesthesia (negative hallucinations) may be induced by conflict with a subconscious process motivated by strong emotion. Thus Miss B. in one of her phases could not see the writing on a sheet of paper which appeared blank to her; on another occasion she could not see the printing of the pages of a French novel which she therefore took to be a blank book, nor could she see a bookcase containing French books.§ The subconscious conflicting ideas were motivated by anger in the one case and jealousy in the other. That the conflicting ideas in this case were elements synthesized in a large dissociated system or subconscious

* The Dissociation, see Index: "Subconscious ideas."

† *Journal of Abnormal Psychology*, October-November, 1908.

§ The Dissociation, p. 538.

self in no way affects the principle, which is that of conflict between processes. The conflicting process in such conditions is a more complex one, that is all. Undoubtedly the systematized anesthesia, so easily induced by hypnotic suggestion and which has been made the subject of much study, may be explained on the same principle, although the affective elements are not so obtrusive. The conflict is between the personal volition of the subject to see the marked playing-card, if that is the test object used in the experiment, and the suggested idea not to see it. The latter wins if the experiment is successful and inhibits the perception of the card—i. e., dissociates it from the focus of awareness. (The emotional tones involved are obscure; possibly they are curiosity on the one hand vs. self-subjection on the other.)

The *unconscious resistance to suggestion* is probably of the same nature. Every one knows that it is difficult to hypnotize a person who resists the suggestion. This resistance may come from a counter auto-suggestion which may be entirely involuntary, perhaps a conviction on the part of the subject that she cannot be hypnotized, or an unwillingness to be—i. e., desire not to be hypnotized or fear. The same is true of waking a person from hypnosis. In other words, an antagonistic preparedness of the mind blocks involuntarily the suggestion. A very pretty illustration is the following: H. O. discovered that she could easily and rapidly hypnotize herself by simply passing her

own fingers over her eyelids, but she could not wake herself out of hypnosis. She then discovered that, if she first gave herself the suggestion that she would wake when she desired, she could quickly do so. Likewise, if she suggested to herself that she could not hypnotize herself the customary procedure was without effect. Though this observation is a common phenomenon the rapidity and ease with which the phenomenon was demonstrated were as striking as it was amusing to watch her struggle to awake when the preparatory anticipatory autosuggestion had not been given.

In O. N. *more complicated phenomena* induced by conflicts with subconscious complexes have been equally precise and striking. In this subject I find, as the result of repeated observations, that, in order that a suggestion, that is antagonistic to a preëxisting attitude of mind possessing a strong feeling tone, shall not be resisted in hypnosis, it must be first formally accepted by the personality *before* hypnosis is induced. If this viewpoint is not preformed, after hypnosis is induced the blocking attitude cannot be altered. Practically this means that the subject shall *bring into consciousness and disclose ideas* with which the intended suggestion will conflict and shall modify them voluntarily. This she does by first candidly accepting a new point of view, and then, secondly, by a technical procedure of her own, namely, by preparing her mind not to resist in hypnosis. This procedure, briefly stated and simplified, is as follows: she first says to her-

self, "I will 'take out' that [resisting] idea." Then she arranges in her thoughts the ideas of acceptance which she will substitute. Then she puts herself into a state of abstraction (hypnosis) and *suggests to herself* that the resisting idea *is* taken out and that my intended suggestion shall be her viewpoint. Even then, sometimes, when the resisting idea is one harking back to a long past period of life and belonging to a pathologically organized "mood," known as the "b mood" or state, the acceptance of the suggestion may be ineffectual. Under these circumstances and *when the hypnotic dissociation is carried too far,* so that the hypnotic state is reduced to the "b mood," the previously auto-suggested acceptance of the idea by the patient is thereby ostracized from the hypnotic field and is unable to play its part and have effect. So much by way of explanation. Now when the precaution has not been taken to see that any resisting idea has been "taken out" and when the intended suggestion has not been accepted, one of the following phenomena is observed: (1) the hypnotic personality when the suggestion is given becomes "automatically" and unconsciously restless, endeavors, *without knowing why,* to avoid listening, and to push me away, shifting her attitude and struggling to withdraw herself from contact or proximity—all the time the face expressing hostility and disapproval in its features; or (2) complete obnubilation of consciousness supervenes so that the suggestions are not heard; or (3) the sub-

ject suddenly wakes up. The last frequently happens as often as the suggestion is repeated; and yet in hypnosis (and also, of course, when awake), the subject is unaware of what causes the resistance and the resulting phenomena. But if now the subject is warned of what has occurred and accepts the suggestion by the procedure mentioned (unless the "b mood" I have mentioned recurs), the resistance and other phenomena at once cease and the suggestion takes effect. Thus in this case the conflicting ideas can always be precisely determined and the conditions of the experiment arranged at will and the results controlled. It is obvious that all three phenomena are different modes by which the subconscious idea resists the suggested idea and accomplishes its aim.

3. *In entire accordance with the experimental results are certain pathological disturbances* which from time to time interrupt the course of everyday life of this subject, O. N. These disturbances consist of one or more of the following: a dissociative state in which the pathological "b mood" is dominant; a lethargic state; twilight state; complete repression of certain normal sentiments and instincts; complete alteration of previously established points of view; morbid self-reproach; nervousness, restlessness, agitation; anger at opposition; indecision of thought, etc. Now, whenever such phenomena recur, with practical certainty, they can always be traced by the use of technical

methods to a conflict with a turbulent sentiment (in which strong emotional tones are incorporated) previously lying dormant in the unconscious. Sometimes the turbulent sentiment can be definitely traced to childhood's experiences. Very often it has been intentionally formed and put into her mind by the subject herself for the very purpose of inducing the repression of other sentiments, to which for one reason or another for the time being she objects, and of changing her habitual point of view. Her method of artificially accomplishing this result is exceedingly instructive. It is similar to the auto-suggestive process I have described in connection with the hypnotic experiments. Having first prearranged her psychological plan, she proceeds to put herself into abstraction and to "take out", as she calls it, her previous sentiment (or instinct) and substitute an antagonistic sentiment. When she comes to herself out of abstraction, the previously objected to sentiment has completely vanished. If it is one concerning a person or mode of life, she becomes completely indifferent to that person or mode of life as if previously no sentiment had existed. If an intimate friend, he becomes only an acquaintance toward whom she has entirely new feelings corresponding to the new sentiment; if a physician, nothing that he says has influence with her, her new feeling, we will say, being that of resentment; if a mode of life, she has lost all interest in that mode and is governed by an interest in a new mode. Even physiological bodily instincts

have been in this way suppressed. She has indulged this psychological habit for years. Again and again when she has exhibited these, and still other, phenomena, I have been able to discover their origin in this auto-suggestive procedure.

Some of the other phenomena I have just mentioned are more likely to be traced to *autochthonous conflicts between everyday ideas*—dissatisfactions with actual conditions of life, and wishes for other conditions, unwillingness to forego the fulfilment of certain wishes and accept the necessary conditions as they exist, etc. The natural consequence is restlessness, agitation, anger, indecision, etc. The dissociation of personality, with the outcropping of the "b mood," follows—a conflict due to the excitation of certain childhood complexes, conserved in the unconscious and embracing sentiments in which are incorporated the instinct of self-subjection or abasement. This "b mood" is a study in itself. The self-reproaches are, I believe, also traceable to this instinct.

Conflicts may even occur between two processes, both of which are subconscious and therefore outside of the awareness of the subject. Thus, in B. C. A. I have frequently observed the following: while the right hand has been engaged in automatic writing, the left hand, motivated by a subconscious sentiment antagonistic to the subconscious ideas performing the writing, has seized the pencil, broken it, or thrown it across the room. The two

conflicting systems of thought, each with its own sentiments and wishes, have been made to disclose themselves and exhibit their antitheses and antipathies.

The principle of emotional conflict and the phenomena we have outlined enable us to understand the mechanism of prolonged reaction time and blocking of thought observed in the so-called "word association tests." These tests involve too large a subject for us to enter upon them here. Let it suffice to say that when a test word strikes an emotional complex the response of the subject by an associated word may be delayed or completely blocked. The emotional impulse which inhibits the response may come from an awakened conscious or subconscious memory.

The psychogalvanic reaction as physical evidence of actual subconscious emotional discharge.—This reaction may be also used to demonstrate that subconscious processes may actually give forth emotional impulses without the ideas of those processes entering the personal consciousness.

1. I may be permitted to cite here some experiments,* which I made with Dr. Frederick Peterson, as they leave the minimum of latitude for interpretation and come as close as possible to the demonstration of emotional discharges from processes entirely outside of awareness. Such a demonstration

* *Journal Abn. Psychol.*, June-July, 1908.

is important for the theory of subconscious conflicts.

The experiments were undertaken in a case of multiple personality (B. C. A.) with a view to obtaining the galvanic phenomenon from coconscious states. This case offered an exceptional opportunity to determine whether the galvanic reaction could be obtained in one personality from the dissociated complexes *deposited by the experiences of the second alternating personality for which there was complete amnesia on the part of the first.* These dissociated experiences, of course, had never entered the awareness of the personality tested, who, therefore, necessarily could not possibly recall them to memory. With the information furnished by the second personality, it was easy to arrange test words associated with the emotional ideas of the experiences belonging to this personality and unknown to the one tested.

Similarly it was possible to test whether galvanic reaction could be obtained from complexes—from subconscious complexes—the residua of forgotten dreams, as in this case the dreams were not remembered on waking. An account of the dreams could be obtained in hypnosis. The dreams were therefore simply dissociated.

Again we could test the possibility of obtaining reactions from subconscious perceptions and thoughts which had never arisen into awareness. The required information concerning these perceptions and thoughts could be obtained in this case in hypnosis.

Now we found that test words which expressed

the emotional ideas belonging to a forgotten dream gave, in spite of the amnesia, very marked rises in the galvanic curve. The same was true of the test words referring to dissociated experiences belonging to the *alternating* personality for which the tested personality had amnesia, and of the subconscious perceptions. For instance (as an example of the latter), the word *lorgnette,* referring to a subconscious perception of a stranger unnoticed by the conscious personality, gave a very lively reaction.

Further, pin pricks, which could not be consciously perceived owing to the *anesthesia* of the skin, gave strong reactions.

Now here in the first two sets of observations were emotional effects apparently obtained from what were very precise complexes which were definitely underlying, in that they never had been experienced by the personality tested and therefore could not come from memories, or from associations of which this personality was aware. They could only come from the residua of a personality which had experienced them and which was now "underlying." That these experiences had been conserved is shown by the recovery of them in a hypnotic state, and by their being remembered by the secondary personality. Even the pin pricks, which were not felt on account of the anesthesia, gave reactions. It could be logically inferred, therefore, that the galvanic reaction was due to the activity of subconscious complexes, using the term in

the narrow and restricted sense of conserved residua without conscious equivalents. But the conditions were more complicated than I have described. There was in this case a veritable coconscious personality, a split-off, well-organized system of conscious states synthesized into a personal consciousness—two foci of self-consciousness. Now the coconscious personality with its large system of thoughts had full memory of all these amnesic experiences; it remembered the dreams and the experiences of the second personality, and perceived the pin pricks. Hence we concluded that the galvanic phenomena were obtained from the memory and perceptions of this coconscious personality.

This demonstration of an actual physical discharge is proof positive that an emotional process can function subconsciously. This being so, *it only needs this discharge to come into conflict with some other process, conscious or subconscious, for one or other phenomenon of conflict to be manifested.*

2. This psycho-galvanic phenomenon may be correlated with those phenomena which we have already studied (p. 381) wherein the emotional element of the process alone rises into consciousness. The former phenomenon is therefore the manifestation of the efferent and the latter of the central part of the activated emotional disposition. The former supports the interpretation of various clinical motor phenomena as being the efferent manifestations of purely subconscious emotional processes. I refer

to hysterical tics, spasms, contractures, etc. The latter phenomenon we have had frequent occasion to refer to. You will remember, for instance, that in the case of Miss B. on numerous occasions it was observed that emotion, particularly of fear, swept over the conscious personality without apparent cause. This emotion could be traced to specific dissociated and coconscious ideas. Likewise in B. C. A., states of anxiety or depression could be related to specific coconscious ideas which, having been shunted out of the field of consciousness, continued their activity in a coconscious state. Janet, as might be expected of so accurate an observer, long ago described the same phenomenon—the invasion of the personal consciousness by the emotion belonging to a coconscious idea. "Isabella," he writes, "presents constantly conditions which have the same character; we shall cite but one other in the interest of the study of dementia. For a week or so she has been gloomy and sad; she hides and will not speak to anyone. We have trouble in getting a few words from her, and these she says very low, casting her eyes down: 'I am not worthy to speak with other people. . . . I am very much ashamed, I have a crushing load on my mind like a terrible gnawing remorse . . . '—'A remorse about what?'—'Ah! that's just it. I am trying to find it out day and night. What is it that I could have done last week? for before I was not thus. Tell me candidly, did I do something very bad last week?' This time, as will be seen, the question is no longer about an act, but

about a feeling, a general emotional state which she interprets as remorse; she is equally incapable of understanding and expressing the fixed idea which determines this feeling. If you divert the subject's attention, you can obtain the automatic writing, and you will see that the hand of the patient constantly writes the same name, that of Isabella's sister who died a short time ago. During the attacks and the somnambulic sleep we establish a very complicated dream in which this poor young girl thinks she murdered her sister. That is quite a common delirium, you will say; perhaps so, but for a hysteric it presents itself in a rather curious manner. She suffers only from its rebound, experiences only the emotional side of it; of the delirium itself she is wholly ignorant; the latter remains subconscious." . . .

"It will be seen by this last example that, in some cases, a small portion of the fixed idea may be conscious. Isabella feels that she is troubled by some remorse, she knows not what. It thus frequently happens that hystericals, during their normal waking time, complain of a certain mental attitude, so much so that they partly look as if obsessed. Celestine experiences thus feelings of anger which she cannot explain." *

As might be expected intense conflicts may have wide-reaching consequences and lead to the development of pathological conditions. Indeed, in the latter we find the most clear-cut exemplars of re-

* The Mental State of Hystericals, pp. 289-290.

pression (dissociation) and other phenomena produced by conflict. I shall point out in later lectures * how in a specific case intense religious sentiments completely repressed their antagonistic instincts and eventuated in dissociation of (multiple) personality (Miss B.) Likewise with B. C. A., as I interpret the phenomena, the dissociation of personality resulted from a conflict between wishes that could not be fulfilled and sentiments of duty, respect, etc. We shall see later the significance of this principle for the understanding of other pathological states.

* Not included in this volume.

LECTURE XVI

GENERAL PHENOMENA RESULTING FROM EMOTIONAL CONFLICTS

The awakening of intense emotional impulses we have seen tends to intensify certain activities and to inhibit other conflicting ones. Further when that which is inhibited is a sentiment possessing an intense emotion the sentiment tends to become dissociated * from the personal consciousness and free

* Inhibition and dissociation, although often loosely used as interchangeable terms, are not strictly synonymous, in that, theoretically at least, they are not coextensive. That which is inhibited may be absolutely, even if temporarily, suppressed as a functioning process, as in physiological inhibition (e. g., of reflexes, motor acts, etc.); or it may be only inhibited from taking part in the mechanisms of the personal consciousness, and thereby dissociated from that psychophysiological system. In the latter case the inhibited process is not absolutely suppressed, but may be capable under favoring conditions of independent functioning outside of that system. This is dissociation in its more precise sense. Inhibition may be said to have induced dissociation, and then the two may be regarded as only different aspects of one and the same thing. In the former case (absolute suppression) the inhibited process cannot function at all, as in certain types of amnesic aphasia when the memory for language is functionally suppressed. Inhibition therefore may or may not be equivalent to dissociation. Practically as observed in psychological phenomena it is often difficult to distinguish between them, and it is convenient to consider them together.

to become by the force of its own emotional dispositions a subconscious process. As a consequence of these tendencies there may result a number of psycho-physiological conditions of personality with some of which we should become familiar. They are observable, as would be expected, in every-day life, and when highly accentuated become pathological phenomena. Let us now consider some of them in detail.

Contraction of the field of consciousness and of personality. —In every-day life intense emotion excludes from the field of awareness thoughts that are unrelated, antagonistic to and incompatible with the ideas exciting the emotion, and perceptions of the environment that ordinarily would enter awareness. The field of consciousness is thereby contracted and limited to thoughts excited by or associated with the emotion. Thus, for example, in the heat of anger the mind is dominated by the particular object or thought which gave rise to the anger, or by anger exciting associated ideas. Conflicting memories and correlated knowledge that would modify the point of view and judgment and mollify (inhibit) the anger are suppressed and cannot enter the focus of attention. Further, a person in such a state may not perceive many ocular, auditory, tactile, and other impressions coming from the environment; he may not see the people about him, hear what is said, or feel what is done to him, or only in an imperfect way. All these sensations are either

actually inhibited or prevented from entering awareness (dissociated) by the conflicting conative force of the emotion. In other words there is a dissociation (or inhibition) of consciousness and consequent contraction of its field to certain emotional ideas.

To take a concrete example, you are playing a game of cards and with zest throw yourself into the game. Something happens to arouse your anger. At once there is a conflict: The impulsive force of your pugnacity instinct meets with the impulsive force of your play instinct and its pleasure feelings. If the former is the stronger, the latter with the ideas to which it is linked are inhibited, repressed, driven out of consciousness. The pleasure of play ceases and its impulses no longer determine your thoughts. Further, you forget the cards that have been played though you knew them well a moment before, you may forget your manners, become oblivious to social etiquette and the environment. You can no longer reason on the play of the cards; you forget your card knowledge. All these processes are inhibited, and consequently the field of consciousness and personality becomes contracted.

On the other hand, the emotion of anger dominating the mind, ideas associated with or which tend to carry your pugnacity instinct to fruition, arise and direct and determine your conduct. Habit reactions are likely to come automatically into play, and you break out into angry denunciatory speech,

if that is your habit. I leave you to fill out the details of the picture for yourselves.

And yet, again through training in self-control, a self-regarding sentiment conflicting with the anger impulse may be awakened, and the latter in turn be dominated, repressed, inhibited.

In the case of an intense fear it is common observation that this contraction may reach a high degree. In the excitement of a railroad accident the frightened passenger does not feel the bruising and pain which he otherwise would suffer, nor hear the shrieks of his fellow passengers nor perceive but a small part of what is occurring about him, but driven only by the intensely motivating idea of escape from danger he struggles for safety. His field of consciousness is limited to the few ideas of danger, escape, and the means of safety. All else is dissociated by the conative force of the emotion and cannot enter the focus of attention. He could not philosophize on the accident if he would. In ordinary concentration of attention or absent-mindedness the same phenomenon of contraction of the field of consciousness occurs occasioned by interest; but with cessation of interest the field of awareness quickly widens. So in contraction of this field from emotion the normal is restored so soon as the emotion ceases.

When this same general contraction of the field of consciousness, effected by the repressing force of emotion, reaches a certain acme we have a patho-

logical condition—the *hysterical state*. The field of consciousness is now occupied by the single dissociating idea or complex of ideas with its emotion that did the repressing—a condition of mono-ideism. All other conscious processes are inhibited or dissociated. When the complex is an intensely emotional one, its nervous energy, now unbridled, is free to discharge itself in many directions, perhaps producing convulsive phenomena of one kind or another.

To attribute these effects of emotion to repression *from conflict* is only to express the facts in different terms. But it would be often an over-emphasis to describe what takes place as a specific conflict between particular sentiments. It is often rather the discharge of a blind impulsive force in every direction which, like a blast of dynamite, suppresses or dissociates every other process which might come into consciousness and displace it.

Systematized dissociation.—Quite commonly the dissociated field, by whatever force isolated, instead of being general may be systematized. By this is meant that only certain perceptions, or groups or categories of ideas that have been organized into a system, or have associative relations, are prevented from entering the personal synthesis. In other respects the conscious processes may be normal. The simplest type is probably systematized anesthesia, exemplified in every-day life in anyone who fails to perceive his eye-glasses,

or any other object he is in search of that is lying under his nose on the table before him; and by the post-hypnotic phenomenon exhibited by the subject who fails to perceive a *marked* playing card or to hear or see a given person, though he perceives all the other cards in the pack and everyone else in the room; and by the hysteric who likewise fails to perceive certain systematized sensations, such as the printing on a page which, itself, therefore appears blank. That which is dissociated in these examples is a comparatively very simple complex, but it may involve larger and larger groups of remembrances, perceptions, sentiments (with their emotions and feelings), settings, attitudes, instincts, and other innate dispositions, etc., organized into a system about the sentiment of self. Such groups and systems may, as we saw when studying the organization of complexes (Lecture IX), be dissociated in that they cease to take part in the functioning of the personality. The personality becomes thereby contracted.

1. The principle involved is this: When a specific idea or psycho-physiological function (memory, sensation, perception, instinct) is by any force dissociated, the exiled idea or function tends to carry with itself into seclusion other ideas and functions with which it is systematized. The dissociation is apt to involve much more than the particular psychological element in question in that it "robs" the personal consciousness of much else. I have already

cited in a previous lecture (p. 318) examples of this principle. I need merely remind you of the observation with Miss B., where the systematized dissociation of auditory images pertaining to the experimenter carried with it the associated secondary visual images of him necessary for tactile perception of his hand. Similarly, in B. C. A., the general dissociation of tactile images carried with it the secondary visual images necessary for the visualization of her body. A large number of examples drawn from all kinds of dissociative phenomena might be given. I will content myself with mentioning two or three more: In automatic writing the dissociated muscular control of the hands usually robs the personal consciousness, so far as the hand is concerned, of all sensory perception, and in automatic speech the dissociation of the faculty of speech often robs the personal consciousness of the auditory perception of the subject's own voice. In hysterics, the specific dissociation of one class of perceptions carries away others systematized with them. In systematized anesthesia it is often easy to recognize this fact. A good example of this is that recorded in the case of Miss B., who, believing she had lost her finger rings, not only could not be made to see or feel them, but also not even the ribbon on which they were hung round her neck, or to hear them click together, or to feel the tug of the ribbon when I pulled it.* The perceptions of these associated sensations were therefore also with-

* The Dissociation, p. 189.

drawn. The same principle can be demonstrated by suggestion in suitable subjects. Thus, for example, I suggest to one of these subjects in hypnosis that she will forget an episode associated with a certain person named "August." After waking she has amnesia not only for the episode but for the name of the person and for the word in its other meanings, e. g., the name of a calendar month. She cannot recall that a month intervenes between July and September.

In these examples the source of the dissociating force is not in every case obvious. But this need not concern us now. What I want to point out is that when the dissociation is the consequence of an emotional discharge the same principle frequently comes into play, the same phenomenon of systematization is of common occurrence. It may be recognized with considerable exactness when a conflict between sentiments has been artificially created. Thus the phenomenon, described in the last lecture (p. 476), of inhibition of sentiments by a self-suggested antagonistic sentiment, may equally well be cited in evidence of this principle. Similarly, O. N. suggested to herself a sentiment antagonistic to a specific sentiment which she previously entertained regarding a particular person. Not only was the latter sentiment dissociated but a number of other allied sentiments systematized around the same person were also incidentally and unintentionally repressed and withdrawn from consciousness, so much

so that her whole point of view was altered.* (It was easy in hypnosis by the procedures already stated to synthesize the sentiments at will so as to drive out, with suggested antagonistic sentiments, the undesired ones. The change of viewpoint and feeling after waking from hypnosis was often quite dramatic.)

2. By this mechanism we can explain the dissociation of large systems of sentiments leaving a contracted personality—a mere extract of its former self—dissociated and distinguished from what it was by different sentiments, instincts and other innate dispositions.† The facts seem to show that the awakening of the emotional impulses of certain sentiments inhibits, not only those particular antagonistic sentiments with which the former are incompatible, but large systems of sentiments, and many instincts and other innate dispositions with which the inhibited sentiments are systematized. The contracted self may or may not be able to recall to memory the fact of having previously experienced the dissociated sentiments. But whether so or not

* One sees the same phenomenon in every-day life. Let a person acquire under a sense of injury a dislike of one who previously was a friend, and every sentiment involving friendship, admiration, esteem, gratitude, loyalty, etc., is repressed with a complete change of attitude. Politics furnishes many examples.

† Exemplified in Miss B. by Sally, in O. N. by the b mood, and in B. C. A. by phase B, and also in the earlier stages of the case by phase A.

the latter no longer functionally participate in the personality.

This mechanism, to be sure, is an interpretation but the facts are easily demonstrated. Minor types of such dissociations result in what we have described as "moods." More extreme types are pathological and characterized as phases of personality.

3. The contrast of the sentiments in such moods and phases with the habitual sentiments having identically the same objects is striking. In other words the object is organized with an entirely different group of emotions (instincts). The subject's sentiment of husband or wife or father or son no longer contains the emotions of love and reverence, etc.; but, perhaps, there are organized within it the emotions of anger, hatred, contempt, etc. A self-regarding sentiment of self-subjection with shame, "feelings" of inadequacy and depression may be substituted for self-assertion, pride, self-respect, etc. These clinical facts are matters of observation. B——n suffers from constantly recurring and very intense attacks of asthma which have certain characteristics which stamp it as an hysterical tic. In the attacks it is noticeable that her personality and disposition—normally amiable, gentle, and affectionate—undergo a change. The parental instinct and sentiments of affection for her family, of whom she is very fond, of modesty, of pride, of consideration for others, etc., disappear and are

replaced by others of an opposite character. Fear, anger, and resentment are easily aroused, etc. B. C. A. in phase B of personality knew nothing of remorse, self-reproach, or despair which characterized the normal phase, and experienced only emotions and feelings of pleasure and happiness.*

Janet, with his customary accuracy in observing facts, has noted these changes, although I think in his attempt at interpretation he has not quite recognized the mechanism by which they are brought about. "With Renée," this author remarks, when noting the facts, "we have gradually seen disappearing the taste for finery; her coquetry —vanity, even—disappeared. With others, the love of property is gone; they lose all that belongs to them and do not care. Bertha formerly had great timidity; she now wonders at the loss of it. She goes and comes at night; she looks at dead bones of which she was afraid in past years, and asks: 'Why does all this make no impression on me now?' Marie, especially, is very curious as to that. She takes no longer any interest in things or people. Overwhelmed with misfortunes, consequences of her malady, and, after having been in comfortable circumstances, reduced to extreme poverty, she does not perceive that her situation is serious. She loses money, when she has only a few pennies left; she mislays her clothing, can scarcely keep on the dress

* My Life as a Dissociated Personality, *Jl. Ab. Psychol.*, December-January, 1908-9.

she is wearing and does not seem to trouble herself about it in the least. Yet we observe that she is still intelligent and might provide against her situation. She does so very little, and only wonders at her indifference. 'Formerly I took care of my things; now I do not.' There are some still more characteristic facts to be observed in this patient. Formerly she loved her husband and was even quite jealous about him. She was devoted to her two children. Since her illness she has gradually abandoned her children, who have been reared by her sisters, and she finally left her husband. For the last three years, instead of her former happy life, she leads about Paris the most miserable existence. Not once did she inquire about her husband or her children. She heard indirectly of the former's death. 'Strange!' she said, 'it does not affect me in the least; yet, I assure you, it does not make me happy, either . . . I simply don't care.' 'But if we were to tell you that your little Louis [it was her favorite child] is dead, too?' 'How do you suppose it can affect me? I have forgotten him!' '' *

4. Janet, when interpreting such phenomena, attributes them to ''psychological feebleness'' in consequence of which the personality cannot synthesize more than a certain number of emotions and ideas to form the personal self-consciousness. It certainly cannot perform the synthesis involved in retaining certain formerly possessed sentiments, etc.,

* The Mental State of Hystericals, p. 205.

but it is not because of *feebleness.* Many hysterics can synthesize quite as *many* psychological elements as a normal person, but not sentiments and emotions of a certain *character,* i. e., those which pertain to certain experiences, to certain systems of remembrances. M. Janet has quite correctly pointed out that, in spite of the apathy and lack of emotionality of hysterics in certain directions, —which, I would insist, in the last analysis means the absence of *particular* sentiments and instincts— in other directions these patients are "extremely excitable and susceptible of very exaggerated emotions," which in turn means the retention of particular sentiments and instincts. These last dominate the personality. Here is the key to the enigma.

From this point of view, the effect of the impulsive force of the dominating emotions has been misinterpreted by M. Janet. These emotions are the causal factors in determining the apathy, i. e., absence of particular sentiments and instincts, and explain *why* they cannot be brought within the personal synthesis. If we bear in mind that emotion means discharge of force, an adequate explanation of such phenomena in a great many instances, at least, is to be found in the principle of conflict and dissociation. The conflict is between the impulsive forces of the emotions pertaining either to antagonistic instincts or to sentiments organized within different systems. With the excitation of emotion, instincts and sentiments which have opposing conative tendencies are inhibited, repressed, or disso-

ciated, and with them the systems with which they are organized. The emotion does not so much cause "psychological feebleness" in consequence of which the personality cannot synthesize sentiments, as it inhibits and dissociates antagonistic sentiments, etc., which consequently cannot be synthesized. The *result* you may call "feebleness" if you like.

Hence it is that hysterics present the seeming paradox of having, as M. Janet observed, "in reality fewer emotions than is generally thought and [in] that their principal character is here, as it is always, a diminution of psychological phenomena. These patients are in general very indifferent, at least to all that is not directly connected with a small number of fixed ideas." According to the view which we are maintaining, the "fewer emotions" are due to the dissociation of many sentiments and instincts by the dominating emotional complex.

5. Let us not forget that this explanation is a matter of interpretation, but the interpretation comports with what is common observation of what happens when a new emotion which is incompatible with an existing emotion (fear—anger) is excited. In the case of Miss B., the alternation of the personality coincident with the excitation of an emotion occurred with such frequency, not to say with regularity, that there seemed to be no room to doubt

the causal factor and the mechanism.* Sometimes the dissociation resulted in the formation of new phases of personality in which Miss B. reverted to a past epoch of time in which she lived once more, the experiences of all later epochs being dissociated; sometimes in phases with a very contracted field of consciousness without orientation in time or place and with little knowledge of self or environment; sometimes—and in these instances the dissociation of organized systems could most clearly be recognized—in the substitution of one of the already established phases (BI, BIV, or BIII) for another. It is not always easy without intensive study, to determine the exact sentiment or instinct which is responsible for the dissociation, although the actual occurrence of the emotional state just preceding the development of the phenomenon is obtrusively obvious. "At various times as a result of emotionally disintegrating circumstances" at least eight different phases were observed in addition to the three regularly recurrent phases.†

In B. C. A. the gradual organization through the circumstances of life of a group of "rebellious" ideas, in which the dominating sentiments and instincts were intensely antagonistic to those previously peculiar to the subject, could be clearly determined. So antagonistic was this group that it was known as the rebellious complex but termed

* The Dissociation, cf. Index: "Emotion, the Disintegrating Effect of," and Chapters XXVIII and XXIX.

† The Dissociation, p. 462.

B complex for convenience. It became by successive accretions a large system and phase of personality. The details are too extensive to enter into at this time; suffice it to say that as the result of what is called an "emotional shock" the B system came into being. This interpreted means that the shock was really the excitation of the rebellious sentiments and other emotions belonging to the B system; there was a conflict; the habitual sentiments and the system to which they belonged were inhibited and replaced by the former (B). Later the displaced sentiments and their corresponding A system were awakened, the emotions giving rise to another shock, a conflict, and the B system, in turn, was inhibited. And so it could be recognized that alternations of systems could be evoked by the alternate excitation of sentiments and instincts—or complexes, if you prefer the term—pertaining to each.

6. This summary of the phenomena of conflict inducing dissociation of personality would be incomplete if the *dissociations effected by entirely subconscious processes* were not mentioned. These can be very neatly studied with coconscious personalities, as such personalities can give very precise information of the mode by which the displacement of the primary personality is effected. In the cases of Miss B. and B. C. A. "Sally" and "B," respectively, have done this. It appears, according to this testimony, that coconscious "will-

ing'' or strong conation, even simply a wish to inhibit the principal consciousness, would effect that result. Thus, for instance, B testified: ''When A is present I can 'come' voluntarily by willing, i. e., blot A out and then I 'come.' . . . By willing I mean I would say to A: '. . . . Go away': 'Get out of the way': 'Let me come: I *will* come,' and then A disappeared. She was gone and I was there. It was almost instantaneous. . . . Sometimes the wish to change would blot out A without actual willing.''

In the case of Miss B. similar testimony of the effect of coconscious willing and wishes was obtained.

When the coconscious wishes, sentiments, etc., are not synthesized into a large self-conscious system (i.e., coconscious personality) which can give direct testimony as to the subconscous conflicts, the former and the process which they incite must be inferred from known antecedent factors and the observed phenomena of inhibition or dissociation. That general and systematized dissociation are phenomena which can be, and frequently are, induced by the conative force of purely subconscious processes, in view of the multiform data offered by hysterics can be open to no manner of doubt. The process may be also formulated in terms of conflict.

Laws governing the lines of cleavage of personality.—In systematized dissociation there is a cleavage between certain organized systems of experiences and

functions and the remainder of the personality. The contracted personality is consequently shorn of much. But we understand only very incompletely the laws which determine *the direction of the line of cleavage* and the consequent extent of the dissociated field. Unquestionably this follows the law of organization of complexes in a general way, but not wholly so. For instance, it is impossible by this law or by any known mechanism to explain the anesthesia which sometimes, apparently spontaneously, appears in certain hypnotic states. A given subject, e. g., B. C. A., is simply hypnotized by suggestion and successively falls into two different states. In one state the subject is found to be completely anesthetic and in the other normally esthetic. The subject is one and the same and the dissociating suggestion, which is the same in each case, contains nothing specifically related to sensation; and yet the line of cleavage is within the field of sensation in the one case and without it in the other; i. e., that which is dissociated includes the sensory field in the one state and not in the other. Similarly when the disaggregation of personality is brought about by the force of a conflicting emotion, the resulting hysterical state or dissociated personality may be robbed of certain sensory or motor functions, although these functions are not as far as we can see logically related to the emotion or the ideas coupled with it. Thus a person receives an emotional shock and develops a one-sided anesthesia and paralysis—a very common phenomenon.

Louis Vivé used to pass into one state in which he had left hemiplegia and into another in which he had right hemiplegia, another with paraplegia. Each state had its own systematized memories, but why each had its own and different motor and sensory dissociations cannot be explained. In Miss B. the dissociation which resulted in the formation of the secondary personality, Sally, withdrew, without apparent rhyme or reason, the whole general field of sensations so that Sally was completely anesthetic.* The sensory functions seemed to be wantonly ejected along with the repressed complexes of ideas. *Per contra,* by the same process which results in dissociation, lost functions are often paradoxically synthesized. Mrs. E. B. and Mrs. R., anesthetic when "awake," are found to be normally esthetic in hypnosis; i. e., the sensory functions are spontaneously synthesized with the hypnotic personality. In other words, in hypnosis the personal synthesis is in this respect more normal than in the "waking" state.

Again, when amnesia results it may cover a past epoch—retrograde amnesia—without obvious reason for the chronological line of cleavage. In short the suppression by dissociation of a specific psychological element—remembrance, perception, sentiment, etc.—not only tends to rob the personality of a whole psychological system in which it is organized but of other faculties, the relation of

* We shall study in other lectures the forces and mechanisms which effected the dissociation in this case.

which to the specifically dissociated element is obscure. It seems as if the dissociation sometimes followed physiological as well as psychological lines.* It is in accordance with this principle that instincts and sentiments which are not immediately concerned in the specific conflict nor antagonistic to the dissociating emotion are often suppressed. Thus it is that hysterics, as we have seen by examples, have lost so many emotions (instincts) and the sentiments involving them, though they are so excitable to the emotions that are retained. In the case of B. C. A. the secondary personality B, the resultant (as I interpret the case) of the conflict between the play instinct and sentiments of duty, responsibility, etc., lost the parental instinct with the emotion of tender feeling (McDougall) and that of fear, with their corresponding sentiments. She was shockingly devoid of filial and maternal love and, indeed, of affection, in the true sense, for her friends. Likewise Sally (in the case of Miss B.), also the product of conflict between the impulses of the play instinct and those of the religious emotions, was entirely devoid of fear, of the sexual, and of certain other instincts not antagonistic to the dominating play instinct. She had lost also a great many, if not all, sentiments involving the tender feeling. As in the examples given of dissociation of motor, sensory, and other functions, the dissociative line of

* See Morton Prince: Some of the Present Problems of Abnormal Psychology, *St. Louis Congress of Arts and Sciences* (1904), Vol. 5, p. 772; also, *The Psychological Review*, March-May, 1905, p. 139.

cleavage had excluded more than was engaged in the conflict. Of course, there always must be some reason for the direction taken by any line of cleavage, following the application of force, whether the fracture be of a psycho-physiological organism or of a piece of china; but when the conditions are as complex as they are in the human organism their determination becomes a difficult problem. When we come to study multiple personality we shall see that the suppression of instincts plays an important rôle.

Amnesia.—It is a general rule that when a person passes from a condition of extreme dissociation to the normal state there is a tendency for *amnesia* to supervene for the previous dissociated state (multiple personalities, epileptic and hysterical fugues, hypnotic and dream states, etc.). Likewise in everyday life it frequently happens, when the dissociation effected by emotion results in an extremely retracted field of consciousness, that, after this emotional state has subsided and the normal state has been restored, memory for the excited retracted state, including the actions performed, is abolished or impaired. Even criminal acts committed in highly emotional states (anger, "brain storms," etc.) may be forgotten afterwards. In other words, in the normal state there is in turn a dissociation of the residua of the excited state. The experiences of this latter state are not lost, however, but only dissociated in that they cannot be synthesized with

the personal consciousness and thereby reproduced as memory. That they may be still conserved as neurographic residua is shown in those cases suitable for experimental investigation where they can be reproduced by artificial devices (hypnotism, abstraction, etc.).

Thus B. C. A. could not recall a certain emotional experience although it made a tremendous impression upon her, disrupted her personality, and induced her illness. In other respects her memory was normal. Janet has described this amnesia following emotional shocks, notably in the classical case of Mme. D.

1. On first thought it seems strange that a person cannot remember such an important experience as that, for example, of B. C. A., when for all else the memory is normal. That this experience had awakened conflicting ideas and intense, blazing emotions with great retraction of the field of consciousness of the moment is shown by the history. Later there was found to be a hiatus in the memory, the amnesia beginning and ending sharply at particular points, shortly before and shortly after this experience. In other words, the extremely dissociated and retracted emotional field could not be synthesized with the personal consciousness or, one might say, with the sentiment of self. In hypnosis, however, this could be done and the memory recovered. Freud has proposed an ingenious theory involving

a particular mechanism by which such amnesic effects are produced. According to this theory the dissociated experience cannot be recalled because it is so painful that it cannot be tolerated by consciousness; i. e., attempted emergence as memory meets with the resistance of conflicting subconscious thoughts, acting as a censor or guardian, and the experience is repressed and prevented from entering consciousness. (It would be, perhaps, within the scope of this theory to say that the impulsive force of the conflicting sentiments (involving pride and self-respect and the instinct of anger) awakened at the moment of the experience continued more or less subconsciously to repress the memory of the whole experience.)

2. If expressed in the following form I think the theory would equally well explain such amnesias, be in conformity with certain known hypnotic phenomena and, perhaps, be more acceptable: An experienced desire not to face, or think of, i. e., to recall to memory, a certain painful experience is conserved in the usual way. When an attempt is made to recall the episode *this desire becomes an active subconscious process* and inhibits the memory process. The analogue of this we have in post-hypnotic amnesia induced by suggestion. In the hypnotic state the suggestion is given that the subject after waking shall have forgotten a certain experience, a name, or an episode. After waking

the conative force * of the suggested idea, functioning *entirely subconsciously* (as there is complete forgetfulness for the hypnotic state), inhibits the memory of the test experience in that there is found to be amnesia for the latter. One may say there has been a subconscious conflict followed by inhibition of one of the belligerents. That antecedent thoughts of the individual can likewise become activated as subconscious processes and come into conflict with other processes and inhibit them, thus preventing them from becoming conscious, we have already seen. The antagonism of the motives in the two processes is often obvious. Numerous examples of inhibitions (induced by conflicts with subconscious ideas, emotions, and conations) of mental processes which could afterwards be recalled to memory in a secondary state of personality have been recorded in the case of Miss B.† Likewise in B. C. A. similar phenomena were testified to as due to subconscious conflicts.‡ There would seem to be no question therefore of either the occurrence of subconscious conflicts or their efficiency in producing amnesia.

* Probably derived from the "will to believe," the desire to please the experimenter, or other elements in the hypnotic setting. The conception of a "censor" or desire to protect the personal consciousness from something painful is an unnecessary complication.

† The Dissociation.

‡ Cf. My Life as a Dissociated Personality, *Jl. Abn. Psychol.*, October-November, 1908.

3. However all this may be, there is no need for us now to enter into the question of mechanisms. Certain it is, though, that we often forget what we want to forget, which means memories that are unpleasant; and certain types of pathological amnesia answer to the Freudian mechanism or some modification of it. Certain amnesias undoubtedly follow deliberate wishes to put certain experiences out of mind, just as they follow hypnotic suggestions that they shall be forgotten. A very neat example is that of the observation previously given (Lecture III, p. 74) of the subject who, in a moment of despair and resentment against criticism, expressed a wish to forget her own marriage name, and lo! and behold! on waking the next day she found she could not recall it. But amnesias of this kind differ in an important respect from the classical amnesias of hysteria. In the latter variety the dissociation is so extensive that reproduction cannot be effected by any associated idea of the personal consciousness; for reproduction another state of consciousness (hypnosis, alteration of personality, etc.) with which the forgotten experience is synthesized must be obtained or the subconscious must be tapped. In the former variety although the reproduction cannot be effected through an idea with which it stands in affectively painful association, it can be by some other indifferent idea or complex with which it is systematized. For instance, in the case of the phobia for the ringing of bells in a tower which we have studied, the original

episode could not be recalled in association with the object of the phobia, notwithstanding that this object was an element in the episode, but it was readily recalled in association with contemporary events of the subject's life. In the case of C. D., who had experienced a painful episode of fainting the same amnesic relations obtained.

4. On the other hand there are other forms of amnesia which the *Freudian mechanism is totally inadequate to explain,* or of which it offers only a partial explanation. I refer to the persisting amnesias of reproduction exemplified by much of the common forgetfulness of every-day life (often due to dis-interest); by the amnesias for whole systems of experiences in hypnotic states, in different phases of multiple personality, fugues, and deliria; by certain retrograde, general, and continuous amnesias of hysteria, alcoholic amnesia, etc. In some of these the amnesia is a dissociation of systems undoubtedly effected by the force of emotional impulses discharged by antagonistic complexes. This is to view the amnesia from its psychological aspect. But it may also be viewed from its *correlated physiological aspect.*

Let us note first that reproduction is a synthetic process which requires some sort of dynamic association between the neurogram underlying an idea present in the personal consciousness and the conserved neurograms of a past experience. From this view we may in the future find the explanation of

amnesia (resulting from the dissociative effect of emotion) in the configuration of the physical paths of residua traveled and engraved by an emotional experience. The emotional discharge may have prevented an associative path of residua being established with the dissociated experience.*

5. Amnesia is too large a subject for us to go into its mechanisms at this time and we are not called upon to do so. It is enough to point out *the different forms of amnesia* which at times are the resultants of emotion. Inasmuch as experiences are organized in complexes and still further in large systems, which include settings (that give meaning to the particular experiences) and other associated sentiments, instincts and other innate dispositions, the dissociation of a single experience may involve a large complex of experiences, or a whole system of such, and result either in a simple amnesia alone or in an alteration of personality accompanied by amnesia. Such amnesias are generally classified as *localized, systematized, general,* or *continuous.*

* T. Brailsford Robertson, in a very recent communication on the "Chemical Dynamics of the Central Nervous System" and "The Physiological conditions underlying heightened suggestibility, hypnosis, multiple personality, sleep, etc." (*Folia Neuro-Biologica,* Bd. VII, Nr. 4/5, 1913), has attempted to correlate these conditions and also amnesia (as one of their phenomena) with the isolation of paths "canalised" by auto-catalysed chemical reactions. These processes he concludes, from previous studies, "underlie and determine the activities of the central nervous system (and therefore the physical correlates of mental phenomena)." (See Lecture V, p. 124.)

6. The first, as it seems to me, is also in principle systematized, the distinction being clinical rather than psychological. By *localized* is meant an amnesia extending over an epoch of time. Thus, in the instance already cited, Miss B. suddenly found that she could not recall a single moment of a particular day, although previously she had remembered well the incidents, owing to a distressing experience the memory of which had tormented her during the whole day. The amnesia was localized in time. It was the result of a suggestion which I gave in hypnosis that the painful experience only should be forgotten; but unexpectedly the remembrances of the whole day disappeared. In other words, the dissociation of a particular remembrance robbed the personal consciousness of all other remembrances with which it was systematized. That it was so systematized was made evident by the fact that throughout the course of the day it had so dominated her mind that she was continuously under its emotional influence. The amnesia was therefore not only localized but *systematized* with the day's experiences. It is to be noted that the hypnotic suggestion necessarily exerted its dissociating force subconsciously after waking.

Similarly in multiple personality, one alternating phase often has complete amnesia for the preceding epoch belonging to another phase. This amnesia may extend over a period of from a few minutes to years, according to the length of time that the second phase was in existence. It is therefore local-

ized. But it is also systematized, not in the sense of relating to only a particular category of remembrances, such as those of a particular object—father, child, etc.—but in the sense of bearing upon all the experiences organized within a large system of sentiments, instincts, settings, etc., characteristic of the second personality. With the dissociation of this system the remembrances of its experiences go, too. Undoubtedly the dissociating force is that of the awakened sentiments, etc., of the succeeding phase. These are always antagonistic to those of the dissociated phase, although those of the one are not necessarily painful to the other. They are simply incompatible with one another, and it may quite well be that their force is subconsciously discharged. Systematized amnesia, on the other hand, may not be localized, bearing as it may only on a particular category of remembrances, let us say of a foreign language with which the subject previously was familiar.

7. The *retrograde* type of localized amnesia is common following emotional shocks. The case of Mme. D., made classical by Charcot and Janet, is a very excellent example. This woman lost not only all memory of the painful emotional state into which she was thrown by the brutal announcement of her husband's death, but of the *preceding* six weeks. The amnesia for the episode might be accounted for on the theory of conflict, but it is difficult to explain the retrograde extension unless it be there was

some systematization covering the six weeks' period within the mental life of the patient not disclosed by the examination.

General and continuous amnesia, the one covering the whole previous life of the subject, the other for events as fast as they are experienced, also, though rarely, occur as the sequence of emotion.

Subconscious traumatic memories.—When an emotional complex has once been organized by an emotional trauma and more or less dissociated from the personality by the conflicting emotional impulses, it is conserved as a neurogram more or less isolated. The fact of amnesia for the experience is evidence of its isolation in that it cannot be awakened and synthesized with the personal consciousness. Now, given such an isolated neurogram, observation shows that it may be excited to autonomous subconscious activity by associative stimuli of one kind or another. It thus becomes an emotional subconscious memory-process and may by further incubation and elaboration induce phenomena of one kind or another.

This is readily understood when it is remembered that such a memory, or perhaps more precisely speaking its neurogram, is organized with one or more emotional dispositions (instincts) and these dispositions by their impulsive forces tend when stimulated to awaken the memory and carry its ideas to fulfillment. The subconscious memory thus acquires a striving to fulfil its aim. We ought to

distinguish in this mechanism between the isolation of the neurogram and that of the process. The former is antecedent to the latter.

The phenomena which may be induced by such a subconscious memory may be of all kinds such as we have seen are induced by subconscious processes and emotions—hallucinations, various motor phenomena, disturbances of conscious thought, dreams and those phenomena which we have seen are the physiological and psychological manifestation of emotion and its conflicts, etc.

Undoubtedly the *mental feebleness,* manifested by a feeling of exhaustion or fatigue, which so frequently is the sequel of intense conscious emotion, favors the excitation to activity of such subconscious autonomous processes or memory when antecedent isolation has occurred. This enfeeblement of personality probably is the more marked the larger the systems included in the dissociation. Certain it is that in fatigued states, whether induced by physical or mental "storm and stress," subconscious processes become more readily excited. The greater the dissociation the greater the mental instability and liability to autonomous processes. Time and again it was noted, for instance in the case of Miss B. and B. C. A., that when the primary personality was exhausted by physical and emotional strain, the subconscious personality was able to manifest autonomous activity producing all sorts of phenomena (when it could not do so in conditions of mental health) even to inhibiting the whole primary

personality.* The direct testimony of the subconscious personality was to the same effect.

Mental confusion.—Fortunate is the person who has never felt embarrassment when the attention of others has been directed to himself, or when some act or thought which he wished to conceal has become patent to others, or when called upon without warning to make a speech in public. Unless one is endowed with extraordinary self-assurance he will become, under such or similar circumstances, bashful, self-conscious, and shy, his thought confused, and he will find it difficult to respond with ready tongue. Associated ideas *à propos* of the matter in hand fail to enter consciousness, his thoughts become blocked even to his mind becoming a blank; he hesitates, stammers, and stands dumb, or too many ideas, in disorderly fashion and without apparent logical relation, crowd in and he is unable to make selection of the proper words. In short, his mind becomes confused, perhaps even to the extent of dizziness. The ideas that do arise are inadequate and are likely to be inappropriate, painful, and perhaps suspicious. The dominating emotion is early reinforced by the awakening of its ally, the fear instinct, with all its physiological manifestations. Then tremor, palpitation, perspiration, and vasomotor disturbances break out. Shame may be added to the emotional state.

* The Dissociation, Chapter XXIX; My Life as a Dissociated Personality, pp. 39 and 41.

1. This reaction becomes intelligible if we regard it as one of conflict resulting in painful bashfulness and shame, inhibition of thought; the excitation of painful ideas, amnesia, and limitation of the field of consciousness. The self-regarding sentiment is awakened and dominates the content of consciousness. The conflict is primarily between two instincts organized within this sentiment—that of self-abasement (negative self-feeling) and that of self-assertion (positive self feeling). The impulsive force of the former, awakened by the stimulus of the situation—let us say the presence and imagined criticism of others—opposes and contends with that of the latter which is excited by the desire of the person to display his powers and meet the occasion. The result of the struggle between the two impulses is emotional agitation or *bashfulness*. If this bashfulness is "qualified by the pain of baffled positive self feeling" there results the emotion of shame.* But these emotional states are not the whole consequences of the conflict. Almost always fear comes to the rescue as a biological reaction for the protection of the individual and impels to flight. The impulsive force of this instinct is now united to that of self-abasement and the conjoined force inhibits or blocks the development of ideas, memories, and speech symbols appropriate to the occasion and dissociates many perceptions of the

* In this analysis I follow McDougall who seems to me to have analyzed clearly and adequately the emotional conditions. (Social Psychology, p. 145.)

environment. On the other hand, the self-regarding sentiment evokes various associative abasing ideas of self and related memories. The victim is fortunate if unfounded suspicions and other painful thoughts (through which criticism of self is imagined and the situation falsely interpreted) do not arise. Or there may be an oscillation of ideas corresponding to the conflicting sentiments and instincts. A person in such a condition experiences mental confusion and embarrassment. The condition is often loosely spoken of as self-consciousness and shyness.

2. Painfully emotional *self-consciousness* of this type as the sequence of special antecedent psychogenetic factors is frequently met with as an obsession. Then fear, with its physiological manifestations, is always an obtrusive element. Individuals who suffer from this psychosis sometimes cannot even come into the presence of strangers or any public situation without experiencing an attack of symptoms such as I have somewhat schematically described. The phenomena may be summarized as bashfulness, emotion of fear, inhibition, dissociation, limitation of the field of consciousness, ideas of self, confusion of thought and speech, inappropriate and delayed response, delusions of suspicion, tremor, palpitation, etc.

The symptomatic structure of the psychoneuroses.—When studying the physiological manifestations of emotion (Lecture XIV), we saw how a large variety of

disturbances of bodily functions, induced by the discharge of emotional impulses, may be organized into a symptom-complex which might, if repeatedly stimulated, recur from time to time. On the basis of these physiological manifestations we were able to construct a schema of the physiological symptoms occurring in the emotional psycho-neuroses. We obtained a structure of such symptoms corresponding to the facts of clinical experience. We then went on in the next lecture to examine the psychological disturbances induced by emotion and found a number of characteristic phenomena. The view was held that emotion is the driving force which bears along ideas to their end and makes the organism capable of activity. We found conflicts between opposing impulses resulting in repression, dissociation, and inhibition of ideas and instincts, and limitation of the field of consciousness. We saw that sentiments in which strong emotions were incorporated tended to become dominating, to the exclusion of other sentiments from consciousness, and to acquire organic intensity and thereby to be carried to fruition. We saw also that the dominating emotional discharges might come from sentiments within the field of consciousness, and therefore of which the individual is aware, or from entirely subconscious sentiments of which he is unaware. And we saw that conflicts might be between entirely conscious sentiments or between a conscious and a subconscious sentiment, and so on. (Indeed, a conflict may be between two subconscious

sentiments as may be experimentally demonstrated with corresponding phenomena.)

Now the practical significance of these phenomena of emotion, both as observed in every-day life and under experimental conditions, lies in the fact that they enable us to understand the symptomatic *structure,* and up to a certain point the psychogenesis of certain psychoneuroses of very common occurrence. (For a complete understanding of the psychogenesis of any given psychoneurosis, such as a phobia, we must know all the antecedent experiences which formed the setting and gave meaning to the dominating ideas and determined the instincts which have become incorporated with them to form sentiments. This we saw when studying the settings in obsessions (Lectures XII and XIII).)

It is evident, that, theoretically, if antecedent conditions have prepared the emotional soil, and if an emotional complex, an intense sentiment, or instinct should be aroused by some stimulus, any one of a number of different possible psychopathic states might ensue, largely through the mechanism of conflict, according, on the one hand, to the degree and extent of the dissociation, inhibition, etc., established, and on the other to the character and systematization of the emotional complex or instinct. As with the physiological manifestations of emotion, we can construct various theoretical schemata to represent the psychological structure of these different states. Practically both

types—the physiological and psychological—must necessarily almost always be combined.

1. The impulsive force of the emotion might repress all other ideas than the one in question from the field of consciousness, which would then be contracted to that of the limited emotional complex awakened; all opposing ideas and instincts would then be dissociated or inhibited—a state substantially of mono-ideism. Let us imagine the dominating emotional complex to be a mother's belief that her child had been killed, this idea being awakened by the sudden announcement of the news. The parental sentiment with child as its object would become organized into a complex with the emotions of fear, sorrow, painful depressed feelings, etc., which the news excited. This complex, being deprived—as a result of the ensuing dissociation—of the inhibiting and modifying influence of all counteracting ideas, would be free to expend its conative force along paths leading to motor, visceral, and other physiological disturbances. An emotional complex of ideas would be then formed which after the restoration of the normal alert state would remain dormant, but conserved in the unconscious. Later, when the emotional complex is again awakened by some stimulus (associative thoughts), dissociation would again take place and the complex again become the whole of the personal consciousness for the time being. This theoretical schema corresponds accurately with **one type of hysterical attack.**

2. If again the awakened complex should be one which is constellated with a large system of dormant ideas and motives deposited in the unconcious by the experiences of life, the new field of consciousness would not be contracted to a monoideism. We should have to do with a phase of personality, one which was formed by a rearrangement of life's experiences. In this case the usual everyday settings (or systems) of ideas being in conflict with the sentiments of the resurrected system would be dissociated and become dormant. The ideas, with their affects, which would come to the surface and dominate, would be those of previously dormant emotional complexes and their constellated system. The prevailing instincts and other innate dispositions would be, respectively, those corresponding to the two phases, the antagonistic dispositions being in each case inhibited. This schema would accurately correspond to a so-called "mood." If the demarcation of systems were sharply defined and absolute so that amnesia of one for the other resulted, the new state would be recognized as one of **dissociated or secondary personality.** A "mood" and secondary personality would shade into one another.

3. Still another theoretical schema could be constructed if, following the hysterical dissociated state represented by schema 1, there were not a complete return to normality, i. e., complete synthesis of personality. The dissociation effected by the impulsive force of the evoked emotional complex and the repressed personal self-conscious-system

might be so intense that, on the restoration of the latter, the former would remain dissociated in turn. The emotional complex would then, in accordance with what we know of the genesis of subconscious ideas, become split off from the personal consciousness and unable to enter the focus of awareness. Amnesia for the emotional experience would ensue. Such a split-off idea might, through the impulsive force of its emotion and that of its setting, take on independent activity and function coconsciously and produce various automatic phenomena; that is, phenomena which are termed automatic because not determined by the personal consciousness. The dissociation might include various sensory, motor and other functions, thereby robbing the personal consciousness of these functions (anesthesia, paralysis, etc.). Such a schema corresponds to the **hysterical subconscious fixed idea** (Janet).

In such a schema also, in accordance with what we know of the behavior of emotion, though the ideas of the complex remained subconscious, the emotion linked with them might erupt into the consciousness of the personal self. The person would then become aware of it without knowing its source. The emotion might be accompanied by its various physiological manifestations such as we have studied. If the emotion were one of fear the subject might be in an **anxious state** without knowing why he is afraid—an indefinable fear, as it is often called by the subjects of it.

4. If, owing to one or more emotional experi-

ences, an intense sentiment were created in which is organized about its object one or more of the emotions of fear, anger, disgust, self-subjection, etc., with their physiological manifestations (tremor, palpitation, vasomotor disturbances, nausea, exhaustion, etc.) and their psychological disturbances (contraction of the field of consciousness, dissociation, etc.); and if the whole were welded into a complex, we would have the structure of an obsession. Such an organized complex would be excited from time to time by any associated stimulus and develop in the form of attacks: hence termed a recurrent psychopathic state as well as **obsession.** (As we have seen, the psychogenesis of the sentiment is to be found in antecedent experiences organized with its object giving meaning and persistence to the obsession.)

5. Finally (to add one more schema out of many that might be constructed), if a number of physiological disturbances (pain, secretory, gastric, cardiac, etc), such as occur as the symptoms of a disease, were through repeated experiences associated and thereby organized with the idea of the disease, they would recur as an associative process whenever the idea was presented to consciousness. Here we have the structure of an "**association or habit-neurosis,**" a disease mimicry. Numerous examples of the type of cardiac, gastric, pulmonary, laryngeal, joint, and other diseases might be given. The physical symptoms in such neuroses are obtrusive, while the psychical elements (including emotion)

which, of course, are always factors, conscious or subconscious, remain in the background.

The study of the individual psychoneuroses belongs to special pathology, and need not concern us here. We are only occupied with the general principles involved in their structure and psychogenesis.

XVII

SUMMARY AND GENERAL CONCLUSIONS

We may now bring this study of human personality to a close, incomplete as it is. We have not by any means exhausted all the factors of personality, but, guided by practical consideration, we have at least examined the chief of its fundamentals, more particularly those which are concerned in the disturbances which general psychopathology makes the object of study. Such a study should be undertaken preparatory to that of special pathology or particular complexes of disturbances of function (the functional psychoneuroses). The aim of psychology should be to become capable of being an applied science. So far as a science is only of academic interest it fails to be of real value to the world. Physics, chemistry, astronomy, mineralogy, geology, physiology, bacteriology, botany, and many departments of zoology, etc., can be applied, and other sciences at least tend to form our notions of the universe in which we live, and thus to mould our religious, philosophical and other conceptions. Until very recent years it was an opprobium of psychology, as studied and taught, that it had not be-

come divorced from philosophy * and stood amongst the few sciences that could not be applied to practical life and was for the most part of academic interest only. Now, however, in the field of medicine psychology is fast looming to the front as of great practical interest—not the older psychology, but the new psychology of functions and mechanisms. In the field of human efficiency in the mechanical arts it is also fast becoming capable of practical application. With the above aim in view we have dealt in these lectures more particularly with those psychological activities a knowledge of which can be applied in the theory and practice of medicine. But as the laws governing the organism are general, not special, what has been found is as applicable to normal as to pathological life.

We have not attempted to enter the field of special pathology to study the psycho-pathology of special diseases. So far as this has been done it has been mainly for the purpose of seeking data. Our aim has been rather to obtain that knowledge of functions which will serve as an introduction to such medical studies. Even in this limited field there are any number of specific problems which have been scarcely more than touched upon and any one of which, by itself, would be a rich field of investigation.

It is well now, in conclusion, to make a general survey of the fields which we have tilled, and gather

* In most universities to-day Psychology is classed as a department of Philosophy! How long is this attitude to be continued?

together into a whole, so far as possible, the results of our gleaning.

We have seen on the basis of the phenomena of memory that the "mind" includes more than conscious processes; that it includes a vast storehouse of acquired "dispositions" deposited by the experiences of life, and that these dispositions (by which mental experiences are conserved) may be regarded as chemical or physical in their nature, as sort of residua deposited (if we are asked to confine ourselves to terms of the same order) by the neural processes correlated with the conscious experiences of life. This storehouse of acquired dispositions provides the material for conscious and subconscious processes; and thus provides the wherewithal which enables the personality to be guided in its behavior by the experiences of the past. It provides the elements of memory which we know must be supplied by the mind in every perception of the environment—even the simplest—and which are required for every process of thought. Indeed throughout our review of processes and manifestations of mind, which we need not recapitulate, we have continually come upon evidences of these dispositions playing as I foretold in our first lecture an underlying and responsible part.

The fact that brain dispositions are of one order of events (physical) while psychological processes are of another (psychical) is in no way an objection to such an interpretation, as in this antithesis we

have only the old mind-matter problem—dualism, or monism, or parallelism.

We have also seen that in neural dispositions, whether acquired or innate, we have a conception of the unconscious that is definite, precise.

We have also reviewed the evidence going to show that though the main teleological function of the unconscious, so far as it represents acquired dispositions, is to provide the material for conscious memory and *conscious* processes, in order that the organism may be consciously guided in its reactions by experience, yet under certain conditions neurographic residua can function as a *subconscious* process which may be *unconscious,* i.e., without being accompanied by conscious equivalents. The latter were classed as a sub-order of subconscious processes. We saw reason for believing that any neurogram deposited by life's experience can, given certain other factors, thus function subconsciously, either autonomously or as a factor in a large mechanism embracing both conscious and unconscious elements; and that this was peculiarly the case when the neurogram was organized with an emotional disposition or instinct. The impulsive force of the latter gives energy to the former and enables it to be an active factor in determining behavior. The organism may then be subconsciously governed in its reactions to the environment.

After a consideration of actions so habitually performed that they become automatic and free from

conscious direction (so-called habit-reactions), of actions performed by decerebrate animals, of cerebro-spinal reflexes, and many motor activities of lower forms of animal life, we came to the conclusion that they also were performed by unconscious neural dispositions and processes, analogous to, or identical with (as the case might be) the acquired dispositions and processes correlated with conscious processes. Many of them may likewise be acquired and in a pragmatic sense intelligent. We thus were able to broaden our conception of the unconscious and its functioning, and at the same time see the further necessity of distinguishing the unconscious as a subdivision of the subconscious.

Proceeding further we found that besides subconscious processes that are distinctly unconscious, there are others which are distinctly conscious (or at least unconscious processes with conscious accompaniments) but which do not enter the focus or fringe of awareness—in other words, true subconscious ideas. These were termed *coconscious* as a second subdivision of the subconscious. They may include true perceptions, memories, thoughts, volition, imagination, etc. As with unconscious processes, any conserved experience of life, *under certain conditions and given certain other factors,* may thus function coconsciously, particularly if organized with and activated by an innate emotional disposition. So we may have subconscious processes both without and with conscious equivalents. We have also seen that coconscious processes may ex-

hibit intelligence of a high order, and the same thing is possibly true in a less degree of unconscious processes. We found evidence showing that a conserved idea may undergo subconscious incubation and elaboration, and that subconscious processes may acquire a marked degree of autonomy, may determine or inhibit conscious processes of thought, solve problems, enter into conflicts, and in various modes produce all sorts of psychological phenomena (hallucinations, impulsive phenomena, aboulia, amnesia, dissociation of personality, etc.).

We have seen how, by the use of the experimental method of *"tapping,"* and by hypnotic and other procedures, that this same autonomy can be demonstrated, manifesting itself by impulsive phenomena (writing, speech, gestures, and all sorts of motor automatisms) on the one hand, and sensory automatisms (hallucinations) on the other. And we have seen that by similar procedures, in specially adapted individuals, remembrances of coconscious processes that have induced identical phenomena can be recalled. With this precise knowledge of the processes at work these automatisms were correlated with the spontaneous occurrence of the same kinds of phenomena in the psychoses and in normal conditions. Their occurrence in all sorts of pathological conditions thus becomes intelligible.

Evidence has been adduced to show that life's experiences, and therefore acquired dispositions, tend to become organized into groups. The latter, termed for descriptive purposes neurograms, there-

by acquire a functional unity; and they may become compounded into larger functioning groups, or complexes, and still larger systems of neurograms. Whether their origin is remembered or not they become a part of the personality. Such complexes and systems play an important part by determining mental and bodily behavior. Amongst other things they tend to determine the points of view, the attitudes of mind, the individual and social conscience, judgment, etc., and, as large systems, may become "sides to one's character." When such complexes have strong emotional tones they may set up conflicts leading to the inhibition of antagonistic sentiments, and sometimes to the contraction and even disruption of the personality. All these phenomena can be induced by the artificial creation and organization of complexes and this principle becomes an important one in therapeutics.

When studying ideas we found that, besides sensory images, they have meaning derived from antecedent associated experiences that form the setting or context. Further evidence was adduced to show that this setting and the idea formed a psychic whole; but that often the former remained subconscious while the idea only, or the affect only, or both, emerged into the content of consciousness. The significance of this mechanism lay in the fact that it enabled us to understand the insistency of emotional ideas or obsessions. Indeed reasons have been given for holding that subconscious processes perform a part in most processes of thought.

Besides acquired dispositions, organized and, so to speak, deposited by life's experiences, personality includes many that are innate, and therefore conditioned by inherited pre-formed anatomical and physiological arrangements of the nervous system. These function after the manner of a physiological reflex; and the theory was adopted that the emotions are the central elements in certain of such dispositions. These may therefore be called emotional dispositions or instincts. By the excitation of such emotional reflexes the organism reacts in an emotional manner to the environment.

In the organization of life's experiences the emotional dispositions tend to become synthesized with ideas to form sentiments and therefore synthesized with the neurographic residua by which ideas are conserved. Thus, on the one hand, neurograms and systems of neurograms become organized with innate emotional dispositions, and, on the other, ideas become energized by the emotional impulsive force that carries the ideas to fruition.

As to general psycho-pathological and certain physiological phenomena, a large variety such as anxiety states, hallucinations, and automatic motor phenomena, are clearly the manifestations of automatic subconscious processes; some are the resultants of conflicts between the impulsive forces of distinctly conscious sentiments, others between those of conscious and subconscious sentiments; others are the physiological manifestation of emotional processes, conscious or subconscious. Some,

indicative of losses from personality (such as amnesia, anesthesia, paralysis, altered personality, etc.), are the resultants of inhibitions or dissociations of acquired or innate dispositions, effected by the conflicting force of antagonistic factors. These resultants may or may not be associated with the excitation and dominance of complexes, or large systems of acquired dispositions. If so, moods, trance states, fugues, somnambulistic states, secondary personalities, and other hysterical states come into being. In all cases these various pathological conditions are functional derangements of the fundamental factors of a given human personality—expressions of the same mechanisms which the organism normally makes use of to adapt itself harmoniously to its own past or present experiences and to its environment.

Viewing as a whole the phenomena we have studied, we see why it is that personality is a complex affair in that in its make-up there enter many factors, some acquired and some innate. Each of these is capable of more or less autonomy and upon their harmonious coöperation depends the successful adaptation of the personality to its environment. It is, we may say with almost literal truth, when these factors work to cross purposes that a personality ceases to be a harmonious whole; just as the individuals composing a group of persons, a football team, for example, when they fail to work together and each strives to fulfill his own purposes,

cease to be a single team. Consciousness is not a unity in any sense that the term has any significant meaning beyond that which is a most banal platitude. The "unity of consciousness" seems to be a cant-expression uttered by some unsophisticated ancient philosopher and repeated like an article of faith by each successive generation without stopping to think of its meaning or to test it by reference to facts. Neither a reference to the evidence of consciousness or to its manifestations gives support to the notion of unity. The mind is rather an aggregation of potential or functioning activities some of which may combine into associative functioning processes at one time and some at another; while again these different activities may become disaggregated with resulting contraction of personality, on the one hand, and conflicting multiple activities on the other.

The unconscious, representing as it does all the past experiences of life that have been conserved, is not limited to any particular type of experiences; nor are the subconscious and conscious processes to which it gives rise more likely to be determined by any particular antecedents, such as those of childhood, as some would have us believe. Nor are these motivated by any particular class of emotional instincts or strivings of human personality. The instincts and other innate dispositions which are fundamental factors are, as we have seen, multiform, and any one of them may provide the motivating force which activates subconscious as well as

conscious processes. Impelled by any one or combination of these instincts unconscious complexes may undergo subconscious incubation and in the striving to find expression may work for harmony or, by conflict with other complexes, for discord.

Having grasped the foregoing general principles governing the functioning mechanisms of the mind, we are prepared to undertake the study of the more particular problems of everyday life and of special pathology.

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